UNITED STATES
INTERNATIONAL TRADE COMMISSION

In the Matter of:	)	Investigation No.
CERTAIN 3G WIDEBAND CODE	)	337-TA-601
DIVISION MULTIPLE ACCESS	)	
WCDMA) MOBILE HANDSETS	)	
AND COMPONENTS THEREOF	)	

OPEN SESSION

Pages: 972 through 1458 (with excerpts)

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Date: July 10, 2008

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BEFORE THE

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Hearing Room B

United States

International Trade Commission

500 E Street, Southwest

Washington, D.C.

Thursday, July 10, 2008

VOLUME III

The parties met, pursuant to the notice of the Judge, at 8:30 a.m.

BEFORE: THE HONORABLE PAUL J. LUCKERN

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P R O C E E D I N G S

(8:30 a.m.)

JUDGE LUCKERN: This is day three In the Matter of Certain 3G Wideband Code Division Multiple Access (WCDMA) Handsets and Components Thereof. It is ITC Investigation 337-TA-601.

It is the third day of the evidentiary hearing. Before we continue with the testimony of the expert witness coming on the stand, Mr. Richard D. Gitlin, who is going to report on the times for yesterday?

MR. POWERS: Your Honor, I don't have the exact times, but I believe it is agreed between the parties. It is approximately 9 and a half for Complainants and seven and a half for Respondents.

JUDGE LUCKERN: That's the total now?

MR. POWERS: That's total.

JUDGE LUCKERN: Monday and Tuesday?

MR. POWERS: Correct.

JUDGE LUCKERN: I mean Tuesday and Wednesday, correct?

MR. POWERS: Exactly.

JUDGE LUCKERN: Thank you very much.

MR. POWERS: Within a few minutes

either way.

MR. BRITTINGHAM: Because we're doing this fairly precisely, it is 9 hours, 36 minutes for InterDigital; seven hours, 28 minutes for Samsung for the first two days.

JUDGE LUCKERN: All right. I hope we're not going to get into the position at the end, you used all your time up, blah, blah, blah, blah. I hope we don't get that argument.

MR. BRITTINGHAM: We all hope that, Your Honor.

JUDGE LUCKERN: I don't want that.

MR. POWERS: Your Honor --

JUDGE LUCKERN: If we can avoid it. In any event, go ahead, Mr. Powers.

MR. POWERS: Thank you, sir. Before we begin I think it would be helpful to get the Court's guidance on a schedule for post-trial briefing and arguments so the parties can then meet and confer and propose a date.

As I understand Your Honor's preferences, you would prefer no more than three weeks for the initial round and no more than two weeks for the subsequent round. That puts us into an argument, our closing argument

date, the beginning of the week of August 25.

And we just wanted your guidance as to whether those guidelines are correct and whether the Court is available on August, say, 26th for argument. If so, in that range. In so, we will be conferring and make sure that everybody is available and can do a date within Your Honor's schedule.

JUDGE LUCKERN: What I have done, say, in the last year maybe or year and a half, I usually, maybe the third day before the hearing is supposed to end or maybe the second day, I sort of say, look it, you parties, you better start talking about what you want to do about post-hearing dates. And usually the staff takes a leading role on coming up with dates.

I really don't have any, you know, firm time or firm thoughts as to initial submissions; two weeks, three weeks. I really don't. I mean, anything that has been set, at least in the last year, really has come from the parties. And they usually get together and I usually go along with them.

It depends upon the investigation, the subject matter, whatever it is, the parties'

schedule, et cetera. And you have got to do it at a certain date. You-all know when my final ID is due. I believe it is due in November 25th or something like that. So I have to have plenty of time for that.

So I would just as soon right now have the staff, if you don't mind, start talking with them and look and see what I have done in the past investigations and what the subject matter is and et cetera.

Now, with respect to closing arguments, generally the parties, and I think you sort of indicated that in your post-hearing submissions, you like to have them after the post-hearing submissions have been filed, which I think is great. I don't think there have been any closing arguments at the last day of the hearing. Everybody is tired and you don't have all the record before you in mind, et cetera, et cetera, et cetera.

But maybe the last year I have had no closing arguments. I have found that the post-hearing briefs are thorough by themselves. And I have felt after considering the post-hearing briefs that I really don't need

any closing arguments.

Now, I don't know what I'm going to do in this case because I haven't seen your post-hearing submissions. Also, when I have had closing arguments -- and I have had them -- I don't like all day listening to canned arguments. Please, I am not -- we have got great attorneys before me, very competent attorneys. I am very fortunate to have such competent attorneys before me.

But just to listen to arguments all day, I have not really relished that. And what I have done when I have had closing arguments, I have usually started out asking questions, perhaps about three-fourths of the time based on the post-hearing submissions. And then, and the parties were put on notice before, I will let the parties have maybe an hour for the Complainant and an hour for the Respondents, half hour for the staff, something like that, to say what they want to say.

That's what I have done when I have had closing arguments in the last three or four years. So that's where I stand right now.

I know I haven't given you an answer,

Mr. Powers. I have been wishy-washy. I certainly won't schedule closing arguments, saying you have to be here on a certain date, period. I won't do that. If I have closing arguments, my attorney advisor will be in contact with the attorneys as to available dates and their schedule.

I mean, you are all busy people and you have other things on your mind and things to do, so I'm not going to schedule arguments on a certain date and you have to be here, that's it. I won't do that.

And based on what I have done in the last year, we may not have closing arguments. As I have said, I haven't had closing arguments -- have you had any before me, Mr. Hall?

MR. HALL: No.

JUDGE LUCKERN: He has only been with me since April -- when did you come onboard?

MR. HALL: April, but I was an intern for a year prior to that and I have never seen a closing argument.

JUDGE LUCKERN: But I have had them. There is no doubt about it. When I have had them, especially been over 24 years here, but

the last three or four years, I have adopted the question route, which I found very, very effective. So I haven't given you an answer. You probably don't like what I have said from the bench, but that's the way I feel right now.

MR. POWERS: That's helpful. Just speaking for Respondents, your suggestion that if there is a closing argument, that the form be with Your Honor stating your questions following the post-hearing submission, we believe would be extraordinarily helpful.

And if it is -- and I don't know if it is even possible -- but your order 18, for example, that laid out a series of questions to the parties that reflected your thoughts following various submissions, that, I think, something along those lines would be extremely helpful as a way of focusing the parties' arguments on the areas of concern to Your Honor.

And we would welcome and encourage that sort of a procedure because we think it is a good way of not having just a canned presentation on issues that you already know, but focusing areas of attention on areas of the

Court's concern.

JUDGE LUCKERN: Again, I don't want to state that they are canned arguments. No, no. You make arguments. I found your opening arguments helpful, I mean, so I don't want to leave the impression that I don't listen to the arguments and don't read them. So I don't want that either.

Do Complainants want to say anything based on what Mr. Powers has said and based upon what I said from the bench?

MR. BRITTINGHAM: No. Your Honor, we're prepared to be present and participate in any argument you find helpful.

JUDGE LUCKERN: Mr. Levi?

MR. LEVI: Staff will be happy to meet and confer with the parties regarding scheduling, as well as any possibility of oral argument.

JUDGE LUCKERN: All right. I am not going to say it all now. Certainly after I close the record, I wanted to see what it is. Perhaps if you are all in agreement, you can give it to Mr. Hall beforehand.

We have a couple other issues, though.

Do we put maximum pages on the initial post-hearing brief and on the reply brief? And, if so, how many pages?

Not on the proposed findings. On the other hand, I believe it was in the last investigation, I think, the staff had proposed a maximum number of pages for the proposed findings. I think that's what was done.

Obviously to put maximum pages for the rebuttal findings, it is difficult, because I insist that you repeat the proposed findings and your rebuttal findings. I mean, you circulate the disks or whatever it is. So to put maximum pages on the rebuttal findings would be rather difficult.

However, I think -- I may be wrong -- but I think that the staff had at least raised it, which is understandable. The staff is over there. We have Mr. Levi and we have one intern and then we have the supervisor. That's it.

They raised it. Now, whether they really want it or whether they said they had to have it or not, I don't recall. In any event, I did not set any maximum pages for the proposed findings, so I have an open mind on

that.

And, again, Mr. Levi, I don't know what your feeling is. You may want to talk it over with Mr. Fusco. I am not encouraging you to do anything on that point.

It has come up also in the past with respect to the number of pages for proposed findings. Mr. Levi, do you want to make any comment?

MR. LEVI: No. Only, Your Honor, that I will talk it over with people in our office as well as counsel for Samsung and InterDigital to see what their feelings are. Perhaps we can reach some agreement on the issue.

JUDGE LUCKERN: If I do set a maximum pages for the proposed finding, it will be the first time I have done it. I am very fortunate to have such good attorneys before me, and I expect anything they submit to me will be of substance. And if they need so many pages, they need so many pages.

I don't like to have you curtailed. I know the requirements when you go to the Fed Circuit, only so many pages, this and that, all that stuff. When we're talking about proposed

findings, we're talking about evidence, et cetera, et cetera, et cetera.

Anyway, you can talk that over. Keep that all in mind. And then if you come to some sort of proposal or if you have a couple, if you can't agree on dates, you can -- whatever you do, get it to Mr. Hall and we will take it up after I close the record.

Anything else that the parties want to bring to my attention? Mr. Brittingham?

MR. BRITTINGHAM: No, Your Honor.

JUDGE LUCKERN: Mr. Powers?

MR. POWERS: No, Your Honor.

JUDGE LUCKERN: Who is going to be the attorney doing the direct examination of Mr. Richard Gitlin?

MR. BRITTINGHAM: Your Honor, this will be Raj Gupta who will be doing the direct examination.

JUDGE LUCKERN: Okay, very good. Glad to have you onboard. Who is going to do any cross-examination?

MR. STEPHENS: Garland Stephens, Your Honor.

JUDGE LUCKERN: Okay, very good. I

appreciate it. Okay. Nobody has anything else to bring to my attention, correct? Fine.

Let's have Complainant call their next witness.

MR. GUPTA: Complainants call Dr. Richard Gitlin, Your Honor.

JUDGE LUCKERN: Mr. Gitlin, do you want to take the stand and I will administer the oath?

Whereupon--

RICHARD GITLIN,

having been first duly sworn, was examined and testified as follows:

JUDGE LUCKERN: Please continue, counsellor.

MR. GUPTA: Good morning, Your Honor. I am Raj Gupta, counsel for InterDigital.

DIRECT EXAMINATION

BY MR. GUPTA:

Q. Good morning, Dr. Gitlin.

A. Good morning.

JUDGE LUCKERN: I'm sorry, I said Mr., but I think, I think you were called Mr., but I only followed through on what I heard. Go ahead.

BY MR. GUPTA:

Q. Dr. Gitlin, what position do you currently hold?

A. I am currently distinguished professor of electrical engineering at the University of South Florida, Tampa, Florida.

Q. And have you held other teaching engagements before?

A. Yes. When I retired from Bell Laboratories, I was a visiting professor of electrical engineering at Columbia University. And previously I was an adjunct professor at Columbia and Princeton University.

Q. And what sort of courses -- have you taught any courses in the field of wireless communications during these teaching engagements?

A. Yes, when I was at Columbia I taught two courses, a course in communication theory and a course in wireless communications and networking. And while I was at Columbia I supervised two students from the beginning through their doctorate degrees and a thesis in wireless communications and networking.

Q. Have you submitted a CV in this case?

A. Yes.

Q. Can we have CX-475C. Is this your CV, Doctor?

A. Yes.

Q. And is this CV current?

A. No. It doesn't include my most recent position, which I assumed in June of this year, latter part of June.

Q. And apart from that, is all the information listed accurate?

A. Yes.

Q. And what is your educational background, Dr. Gitlin?

A. Well, I have received a Bachelor's degree in electrical engineering from the City College of New York, a Master of Science in electrical engineering from Columbia University, and a doctor of engineering science from Columbia University.

Q. And prior to assuming your distinguished professorship position, what other employment have you held?

A. For the last three years I was CTO, that is chief technology officer, at Hammerhead Systems, a networking startup company in Mountainview, California. Prior to that I

spent most of my career at Bell Laboratories from 1969 to 2001.

Q. From 1969 to 2001 at Bell Labs, what sort of responsibilities did you have?

A. When I started, of course, I started as an engineer. And when I retired I was senior vice president for communications and networking research in Bell Labs. And my responsibilities included all research in wireless communications and networking.

Q. Have you written any technical publications in the field of wireless communications?

A. I have about 90 published papers and about a third of them are in the wireless domain.

Q. And have you filed any patent applications in the field of wireless communications?

A. I have 43 issued U.S. patents, six pending. And, again, about a third are in the wireless area.

Q. And have you received any awards or recognition in the scientific community for your work in this field?

A. Well, I am very honored to have been elected a member of the National Academy of Engineering, and I have also been appointed a Bell Labs fellow and fellow of the IEEE.

MR. GUPTA: Your Honor, we would offer Dr. Richard Gitlin in the field of wireless communications.

JUDGE LUCKERN: Mr. Garland?

MR. STEPHENS: It is Mr. Stephens, Your Honor. No objection.

JUDGE LUCKERN: I'm sorry.

MR. STEPHENS: Garland is my first name.

JUDGE LUCKERN: Sorry, Mr. Stephens.

MR. STEPHENS: It is a common mistake. No problem.

JUDGE LUCKERN: I really murdered your name. In any event, I looked at the transcript. Okay. Mr. Levi?

MR. LEVI: Staff has no objection, Your Honor.

JUDGE LUCKERN: All right. In light of the testimony that I have heard this morning and in light of CX-475C, which I have before me, it is the curriculum vitae of Richard

D. Gitlin, rather extensive document, at least the document lists some 89 publications that he has been involved in, I'm going to qualify the witness as an expert in the field of wireless communications.

Please proceed, Mr. Gupta.

MR. GUPTA: Thank you, Your Honor.

BY MR. GUPTA:

Q. Dr. Gitlin, have you formulated opinions in this case?

A. Yes, I have.

Q. And what are your opinions?

A. My opinions are that the accused Samsung handsets infringe claims 1, 3, and 4 of the '579 patent and that the InterDigital R6 PC card is covered by claim 3 of the '579 patent.

Q. And what information have you relied on in formulating your opinions?

A. I have relied on the patent, of course, Samsung documents, Qualcomm documents, InterDigital documents, depositions of the Samsung and Qualcomm employees and the various standards in the field.

Q. Now, if you could turn to your witness binder, which I believe is in front of you.

I'm sorry, the demonstrative binder with your slides.

A. Thank you.

Q. Now, did you, did you assist in preparing slides CDX-501 through 568?

A. Yes, I did.

Q. And is the information that's listed in there accurate?

A. Yes, it is.

Q. And will these CDX-1 through CDX-568 assist the Court, assist you in giving your testimony today?

A. Yes.

Q. Now, turning, first, to the '579 patent, what is the patented technology of the '579 patent?

A. The patent as a whole is directed towards the generation of a user equipment-specific scrambling code for scrambling and descrambling the high speed shared control channel.

Q. And turning now to, on the screen I have CDX-501, what is your basis for saying that?

A. Well, if I look at the cover sheet of

the patent, it has on there the title, this is on CDX-501, the title is very clear, it is about generation of user equipment identification specific scrambling code for the high speed shared control channel. The title is very clear as to the purpose.

Q. Now, on the screen here we have CDX-502. What is shown here?

A. If we look at the highlighted abstract of the patent on CDX-502, this is CX-3, the abstract, it provides more detail about the production of the code. It says code is produced for use in scrambling and descrambling, or descrambling the data of the high speed shared control channel.

It goes on to give a little more detail, that it uses a user identification of the particular user equipment comprising L bits, in this case, and that's input to a half rate convolutional encoder that processes the UE ID to generate the scrambling code.

Q. Turning next to CDX-503, what is shown here?

A. Well, here on CDX-503 is the summary which is, again, from the patent, CX-3, column

1, lines 45 to column 2, lines 4. It is very consistent with the summary. It talks, again, about the production of a code that's used for scrambling or descrambling the control channel. And it talks about how the code is generated starting with the user equipment identification, the L bits being processed by a half rate convolutional encoder to produce the scrambling code.

Q. And what is the high speed shared control channel?

A. The high speed shared control channel is a channel in the HSDPA service.

Q. And what is HSDPA?

A. If I may have the next demonstrative, CDX-504. HSDPA is an acronym standing for high speed downlink packet access. It is a service offered in the wideband CDMA 3G system. Today it offers multi-megabit service.

And the control channel is a support channel for the HSDPA service.

Q. The box shown here on CDX-504, that's from the patent at column 2, lines 16 through 21; is that correct?

A. Yes, it is.

Q. Turning to the next slide, CDX-505, can you briefly explain how HSDPA works?

A. Yes. Referring to the CDX on the screen, 505, first it is a downlink packet service or packet access. So downlink refers to communications from the base station to the mobile terminals called user equipment in the patent.

And so here we show a base station communicating with, in this example, three mobiles. There are two primary channels, the lower channel is the data channel, the HS, the high speed physical downlink shared channel. That carries data packets; for example, video.

Those are the packets that are of interest to the user equipment. That's what the user ultimately wants to acquire.

The control channel supports reliable communications over the data channel. So that the control channel, the high speed shared control channel -- and I will probably just say controlled channel from now on because that's a mouthful -- this carries the time critical information that's necessary for processing the data channel correctly.

So the control channel has two parts, part 1 and part 2. We will be focused mostly on part 1. And part 1 will be scrambled by the UE specific scrambling code, which is the subject of the patent.

Q. And why is the part 1 scrambled by a UE-specific scrambling code?

A. The control channel communications is a unique packet communication system in that the information that's being sent on the part 1 doesn't contain specifically the address of the desired destination.

In most packet communication systems, the address would appear in the packet and the packet -- the intended receiver would read it. Here what's done. The base station knows who the intended receiver is, uses the user ID, generates the scrambling code and scrambles the part 1 information with the UE-specific scrambling code of the intended receiver.

And as the information processes down the control channel, you will see the control channel is actually launched a bit earlier in time than the data, so the control channel can be processed by the intended receiver. The

information that's contained on the, in part 1, is then loaded into the receiver and the receiver can properly process and grab the payload or the data on the data channel, for example, the video.

So if we can run the animation, what would happen is suppose in this example that the intended receiver is UE-3. The base station will scramble the part 1 bits using the scrambling code for UE-3. When the control channel gets to the UE-1, it will attempt to descramble using its scrambling sequence, which is the incorrect scrambling sequence. It will be unsuccessful.

Similarly, UE-2 will attempt to do this, descramble, and it will be unsuccessful. Finally, when the control channel reaches UE-3, UE-3 will descramble with the correct scrambling code, will extract the part 1 information, it will be loaded into the receiver of UE-3 and UE-3 will be able to correctly receive and process the payload on the data channel.

Q. As the animation ran through in the slide that was there previously was CDX-506 and

the slide that is currently up on the screen is CDX-507. Is that correct?

A. Yes, it is.

Q. How is the high speed shared control channel described in the '579 patent? And I have here up on the screen CDX-508.

A. So on CDX-508, if we can highlight the lines, this is from CX-3 of the patent, column 1, lines 35 to 41. It describes what goes on at the UE. The UE is listening to the control channels. There are actually several, four of them that are being monitored.

It processes each of the received part 1s with its UE-ID specific scrambling sequence because it doesn't know if the part 1 information is intended for it. After processing, and if it is successful, the UE will be able to descramble the part 1 information so it will know it is the intended receiver.

So the UE, as the patent describes, uses its, it produces and uses its specific scrambling code to recover the part 1 data. And it recovers the part 1 data and then it facilitates proper reception of the data

channel.

JUDGE LUCKERN: Mr. Gupta, I just want to ask you something. I have before me a copy of what I thought was 579. I got it before the hearing started.

And I notice your CDX-504, you have CDX-504 there or that's 504, I think, is the previous one, isn't it?

MR. GUPTA: Yes, Your Honor.

JUDGE LUCKERN: I have to make sure. Yeah, 504. And it says CX-3, column 2, lines 16 to 21. Now, I don't find -- maybe I have something that's not the '579 patent here because I don't find that at column 2, lines 16 to 21.

My column 2, line 16 makes reference to a brief description of figure 3 of something, so I don't know what I have got. Do you understand what I am trying to say?

MR. GUPTA: Yes, Your Honor. And it is an error, and I apologize for that. It should be column 1.

JUDGE LUCKERN: Where does this occur, anyway? Where is that found in the patent, this high speed downlink, what column and where

is it?

MR. GUPTA: Right. Your Honor, it is on column 1, lines 16 to 19.

JUDGE LUCKERN: Column 1.

MR. GUPTA: Actually 16 through 21 but just on column 1.

JUDGE LUCKERN: It is column 1, line -- oh, okay. Wait a minute. Column 1, line -- okay, a high speed downlink, okay, that's what it is.

I would hope that whatever travels with this record, that that will be corrected.

MR. GUPTA: Yes, Your Honor. I apologize for the mistake.

JUDGE LUCKERN: It is understandable. There is a lot of work here. But let me ask you a question also.

This, of course, is a portion -- you have the patent. Do you have the patent in front of you, Doctor?

THE WITNESS: No.

JUDGE LUCKERN: Why don't you get the patent, CX-3, in front of you.

THE WITNESS: Yes.

JUDGE LUCKERN: This portion is under

the subheading background, isn't it?

THE WITNESS: Yes, it is.

JUDGE LUCKERN: All right. Let me ask you this question. How would you define a person of ordinary skill in the art at approximately May 2002 when the provisional application was filed? Can I take somebody off the street and say that's a person of ordinary skill in the art that would understand the patent? Would the person have to have some sort of minimum education or minimum working experience in your opinion?

THE WITNESS: Yes, I have a slide later on, but I can summarize it. My opinion is that it would be someone with a Bachelor's or a Master's degree in electrical engineering or similar field and about three to five years of experience in cellular or wireless communications or related disciplines.

JUDGE LUCKERN: When you say similar field, how broad does that go?

THE WITNESS: Well, you know --

JUDGE LUCKERN: I am a chemist. Would I qualify?

THE WITNESS: I think someone --

JUDGE LUCKERN: I don't know if I would, but I will on this technology when the ID is issued. Go ahead.

THE WITNESS: I think someone who worked, you know, wireless, people have various definitions, but people who work in telecommunications, a lot of this, you know, wireless often refers to the RF aspect of the system, the radio aspect.

But there is a networking aspect which, you know, is what this patent is about. It is about networking. And people who have worked in networking as opposed to cellular or wireless would be able to understand this patent as well.

JUDGE LUCKERN: So a Master's degree isn't essential, I take it, because you said Bachelor or Master's. If you only have a Bachelor's, should you have more experience because you don't have a Master's?

THE WITNESS: I think that's why I said three to five years. You know, someone who might be working post Master's might need threel, someone who has a Bachelor's degree, might have five.

JUDGE LUCKERN: And is it your testimony, for example, with this background that's in this patent, background is subheading there it starts on the column 1, around line 12 and goes all the way down to around 62, would it be your opinion as a person of ordinary skill in the art as you have just described, would understand all this that's in this background? In other words, he would be familiar with this background and have an understanding of this background?

And if you don't understand my question or if it is a stupid question or whatever it is, say it doesn't make any sense, Your Honor, whatever it is. However you want to proceed.

I don't know if you were here yesterday, but I said the same thing yesterday. Does anybody have any objections to my questions? Object, fine, I may overrule you. Go ahead.

THE WITNESS: It is a fair question. Certainly someone who has been working in the cellular industry would be familiar with 3G and HSDPA.

JUDGE LUCKERN: So they would be familiar with this background itself?

THE WITNESS: With the background, yes, they would know what the service is, you know, they would be able to read a quick article if they hadn't worked on HSDPA to understand it very quickly.

JUDGE LUCKERN: Okay. Go ahead, Mr. Gupta.

MR. GUPTA: Thank you, Your Honor.

BY MR. GUPTA:

Q. Let's go back to CDX-509, which I have here up on the screen. Dr. Gitlin, you were talking about the part 1 information. And what information is carried on the high speed shared control channel?

A. The part 1 information contains time critical information, it contains the channelization codes and the modulation format associated with the payload.

And the information is processed in the following way. You start with the part 1 information and then it goes through a series of processing steps that I will talk about shortly. And then it is mixed or scrambled

with the scrambling code or scrambling sequence that's generated in accordance with the patent using the 40-bit UE-specific scrambling sequence as described in the '579 patent, which is CX-3.

So the part 1 signal is generated. There is a corresponding part 2 signal, which contains less time critical information, but does contain other information such as an overall error check. Now we have the control channel word or frame that's been generated, and it is ready for transmission.

Q. And this description that you just gave, that is in reference to CDX-510, which is on the screen; is that correct?

A. Yes, it is.

Q. And turning to CDX-511, how does the patent describe generating this UE-specific scrambling code?

A. So here on this CDX-511, I have an excerpt from the patent, CX-3, column 1, line 67 to column 2, line 4. The patent describes that you start with a user identification of the particular user equipment. That's a set of bits that uniquely or explicitly identifies the

user.

And then that is processed through a half rate convolutional encoder, which processes at least the bits of the user identification. And I will sometimes call user identification UE ID. I will use those interchangeably by a half rate convolutional code to produce the output scrambling code.

So the specific scrambling sequence or code is generated, which is figures 1A and figure 1B from the patent. So you start with the user ID, here it is in L bit sequence that specifies the particular UE. It is unique. It is input to a half rate convolutional encoder, and it produces a code word at the output CUE. One characteristic of a half rate convolutional encoder, it will double the length of the number of bits that are input.

And then typically the required scrambling sequence may not match the length of the code word coming out, so there is a rate matching element, which will either increase or decrease the size of the code word. In the patent, in the application of the system, this rate matching will actually reduce the code

word size by puncturing or removing bits and the scrambling sequence, the UE-specific scrambling sequence that's generated starting from the UE ID here using the laser pointer to point to the UE ID, the overall scrambling sequence of interest here is denoted as RUE.

JUDGE LUCKERN: Doctor, you are doing a great job, but I want to make sure that when I read this transcript two weeks from now, I will know precisely what you are saying. I can't call you up on the phone and talk to you about it.

For example, you said, so you start with the user ID. Here it is in L bit sequence, that specifies the particular UE. Now I am looking at the demonstrative. I guess the L bit sequence -- and you sort of pointed to the UE ID or something there.

THE WITNESS: Let me clarify.

JUDGE LUCKERN: Do you understand that? I mean, you are doing a great job. But just make sure when you start talking about something and describing it and using the pointer that you put it in words so when I read it, I will know precisely what you are making

reference to. Do you understand what I am asking you?

THE WITNESS: Yes, certainly.

JUDGE LUCKERN: You are doing a great job. Just keep that in mind. I didn't find exactly what you said when I looked at this demonstrative. Do you understand what I am saying?

THE WITNESS: Let me try it again then.

JUDGE LUCKERN: No problem.

THE WITNESS: So the input to the system to generate the scrambling sequence is referred to in figure 1A as the input on the left, the UE ID. That is the user equipment ID.

And it is in L bit word, X sub UE 1 through X sub UEL, that's bit 1 up through bit L. That goes into a convolutional encoder encoder and the output is a code word CUE, which will have twice the bit length of the input word.

So this will be a word that will be twice the size of the input word. Then this code word will go through, in figure 1B, the

rate matching element. And the purpose of the rate matching element is to make sure that the output code word RUE is consistent with the requirements of the scrambling sequence.

So this may need to be larger or smaller in terms of the number of bits than the input code word. In the application at hand, it will be smaller. And the rate matcher will remove, as it turns out, 8 bits from the CUE.

JUDGE LUCKERN: And when you say "so this may need to be larger or smaller," what is this again?

THE WITNESS: This is the output, the RUE. That's the scrambling sequence.

JUDGE LUCKERN: That's the end, the one in figure 1B?

THE WITNESS: Yes, that's the UE-specific scrambling sequence that's generated. So we start on the left with the UE ID, the L bits that identify the mobile or piece of equipment, and you end up producing the RUE at the output.

JUDGE LUCKERN: Okay.

THE WITNESS: That's the goal.

JUDGE LUCKERN: Thank you, Doctor. Go

ahead, Mr. Gupta.

BY MR. GUPTA:

Q. And turning next to CDX-512, does the patent describe a previous method that was used to generate a UE-specific scrambling sequence?

A. Yes. If we can enlarge the highlighted area from the background section of CX-3, column 1, lines 42 to 49, as Dr. Dick spoke about yesterday just prior to the invention of the '579 patent, the working group 1 of the RAN study group was standardizing a 10-bit UE ID. And the way the 10-bit UE ID was converted into a 40-bit scrambling sequence, so the part 1 information is 40 bits wide, so the scrambling sequence has to match that.

So you need to generate a 40-bit scrambling sequence. So pointing to the slide CDX-512, you start with this 10-bit UE ID. It is input into a 32, 10 Reed-Muller block coder. 32, 10 means that it takes 10 bits as an input and produces 32 bits as an output.

So as the animation shows, I have put 10 bits in and I have produced a 32-bit output, which I am pointing to with a laser, with 32 bit code. Since the requirement is to produce

a 40-bit code, as the first 8 bits come out of the coder, the Reed-Muller coder, they are appended on to the back and now you have the 40-bit code. So this was the 40-bit, the prior art scrambling sequence.

Q. Turning next to CDX-513, why was there a need to come up with a new way to generate the scrambling sequence?

A. So if you could highlight -- if you could enlarge the highlighted yellow on CDX-513, this is from the patent CX-3, column 1, lines 51 to 53.

It was, as Dr. Dick testified, it was proposed to extend the UE ID length to 16 bits. So the proposal that was, the standard that was in place was using a 10-bit UE ID.

So now the requirement changed that the initial input to the encoder was 16 bits. The 32, 10 Reed-Muller block coder can accept an input as the 32, 10. The 10 indicates it is the input. The 32, 10 Reed-Muller block coder was no longer compatible with the 16-bit UE ID.

So the challenge was on and the race was on to come up with a new means of generating a scrambling code with a 16-bit UE

ID.

Q. Turning next to CDX-514, so how was this problem solved?

A. So the inventors came up with a new way of generating a UE-specific scrambling code for a 16-bit UE ID. So here on CDX-514, I have taken figures 2A from the patent and 2B, and then we will run some animation.

So we start with the 16-bit UE ID at the left. So the 16-bit UE ID is XUE1 through XUE16. So bit 1 is XUE1. Bit 16 is XUE16. So the 16-bit identifier is now appended with 8 zero bits. That's common when you are inputting into a convolutional encoder to extend the input.

And so now you have a 16 plus 8 or a 24-bit input sequence. It goes through the half rate convolutional encoder, so the one-half means that's the ratio of the input to the output word size.

So now you have produced, you have put in 24 bits, you have doubled the bit length. You double the length of the code word, the output. So now you have code word is CUE1 -- that's the first bit -- all the way through

CUE48. That's the last bit, the output bit. But the last bit of the code. So you have a 48-bit word as the code.

The requirement is to have a 40-bit scrambling sequence. And now the code word is input into a rate matcher which punctures or removes 8 bits and it produces the 40-bit UE-specific scrambling sequence. So that's how the invention works.

Q. Now turning next to CDX-515, how is -- what is the purpose of generating this UE-specific scrambling code?

A. Looking at CDX-515 at the, again, from the summary of the patent, column 1, lines 65 through 67, the purpose is to produce a code that can be used, produce a code for either scrambling or descrambling the data of the control channel. Scrambling will occur at the base station and descrambling will occur at the receiver.

So this is a code that can be used either for scrambling or descrambling, the data on the part 1 of the control channel.

Q. Turning next to CDX-516, how is the use of the scrambling code depicted in the

preferred embodiment of the '579 patent?

A. So referring to CDX-516, here we show on the top figure 3 from the patent and the bottom figure 4. Let me discuss the figure 3 first.

So here is the UE-specific scrambling code --

JUDGE LUCKERN: And where is here?

THE WITNESS: Right here, RUE1 through RUE40. It is the very same scrambling code that was produced on the last slide. It is the output, the convolutional encoder followed by the rate matcher.

JUDGE LUCKERN: Thank you.

THE WITNESS: You produce it both at the transmitter and at the receiver, as I will describe shortly.

JUDGE LUCKERN: Thank you.

THE WITNESS: So this comes from the output of that processing chain I showed on the previous chart. And that scrambling sequence is mixed. And the mixing is done through this circle with a plus sign in the context of the patent. We will generally call this operation an Exclusive Or, a well defined logic

operation. And that's mixed with the encoded control channel data in the preferred embodiment.

So now you have the scrambled data that is ready to go further and then out and to be transmitted over the air. So this shows in the preferred embodiment how the code is produced at the transmitter and it is mixed to perform a scrambling operation on the input data.

BY MR. GUPTA:

Q. Now, turning next to CDX-517, and highlight, I am bringing up figure 4 from the patent, what is shown in figure 4?

A. So on figure 4 of the patent, here I have the very same UE ID scrambling sequence, the RUE1 through RUE40. Here it is at the transmit -- at the receiver. So it is essential to understand the very same scrambling sequences produced at the transmitter, very same scrambling sequences produced at the receiver, and it is then mixed with the same mixing operation with the received control channel signal.

And assuming that the channels didn't

have many errors and that this is the intended receiver that you are descrambling with the same scrambling sequence as was applied by the transmitter, you will have the descrambled encoded control channel data.

Q. So turning to CDX-518, which is on the screen, what is the invention of the '579 patent?

A. Simply put, the title makes it very clear. It is about generation or production of a user equipment identification or UE ID-specific scrambling code for the high speed shared control channel. And then that's in the first excerpt, column 1, lines 1 to 4, the title. And then the other excerpts in column 1, lines 31 to 32 and lines 39 to 41, it indicates how the UE will use the UE-specific scrambling sequence.

So it needs to recover the part 1 information so it monitors up to four channels. It performs descrambling with the goal of recovering its part 1 information. And that part 1 information is necessary for proper recovery of the data channel.

So it is very clear the patent is

about generation of the UE-specific scrambling code.

Q. Turning to CDX-519, I think Your Honor already asked you for your opinion regarding the ordinary skill in the art.

A. Right.

Q. And is that, is your opinion regarding the level of ordinary skill in the art reflected in CDX-519?

A. Yes. That's what I had said before on 519.

JUDGE LUCKERN: Let me ask you this question, Doctor. I will say the '579 patent is very refreshing. We only have four columns and the last two columns are mostly the claims, so it really is a refreshing patent to see the short language for the whole patent.

But, in any event, there is a brief description of the drawings. You have the patent in front of you, don't you?

THE WITNESS: Let me get it again, sir.

JUDGE LUCKERN: You have it? You have a brief description of the drawings and then under there you have an indication of the

preferred diagram in figure 1A and the preferred diagram in figure 2A.

And then you have figure 2B that's just a diagram and figure 3 is just a simplified user equipment, et cetera. And figure 4 is just a simplified base station.

A person of ordinary skill in the art looking at this patent, I take it this figure 3 and figure 4 has something to do with the preferred diagrams or am I wrong there? They don't say anything about a preferred in figure 3 or figure 4, so do you understand what I am trying to ask you?

Is this figure 3 and figure 4 just something that would be included in these preferred diagrams? Do you understand? Maybe it is a muddled question and it is unintelligible.

THE WITNESS: Well, I think it is, you know, in the paragraph headed description of the preferred embodiments, so I looked at, interpreted 3 and 4 as preferred embodiments of the patent. It is illustrative of how you would use it.

JUDGE LUCKERN: In your opinion is

there any language in this patent that a person of ordinary skill in the art would understand that the patent would cover, which is not necessarily a preferred embodiment? Do you understand the question?

THE WITNESS: I am not sure I do.

JUDGE LUCKERN: All right. Move on, Mr. Gupta.

BY MR. GUPTA:

Q. Up here on the screen I have CDX-520. And this lists the asserted claims, claims 1, 3, and 4 on the left-hand side. And it has basically a road map which tells you with the highlighted claims, claim terms are the ones that you are going to offer an opinion regarding the meaning of those terms and on what CDX numbers those terms are discussed. Is that accurate?

A. Yes, it is.

Q. Turning to the first term on CDX-520, which is highlighted on claim 1, apparatus, and I have here on the screen CDX-521, what is your opinion regarding the meaning of the term apparatus as it appears in claim 1 to one of ordinary skill in the art?

A. So on CDX-521, there are InterDigital's proposed construction, apparatus is either a user equipment or a base station. And I agree with that interpretation. And let me tell you why.

So if you look at the ten claims of the patent and you look at the first three words, they are either an apparatus, a user equipment, or a base station. So it is my opinion that the folks who wrote the patent, the claim drafters, were able to -- the claims that they wanted to restrict to a base station, that was in the first three words. The claims that they wanted to restrict to the user equipment were in the first three words. And apparatus is a general term which could cover either user equipment and the base station.

And the language that follows in the UE claims and the base station claims is consistent with what might be -- what is to be produced at the user equipment or the base station. So there is also additional support, I will say more about it in a little bit, but in the text of the claim. It says produce a code used for scrambling.

That's a scrambling sequence. And that we have seen in the patent that the scrambling sequence is used both at the base station and at the UE.

So it is clear to me that one of ordinary skill in my opinion, that one of ordinary skill in the art would understand apparatus to be user equipment or a base station.

Q. Just for a brief moment I want to get back to the discussion regarding the preferred embodiment. Do you also have -- do you have the patent also there, CX-3?

A. I need to get it back.

Q. If you flip to column 2.

A. Yes.

Q. And if you look right underneath the description of the preferred embodiments at column 2, line like around 23, is there a description in the patent that the invention is not limited to the preferred embodiments?

A. Yes. It is the end of that sentence, looking at line 27, the invention can be applied to other code division multiple access communication systems.

Q. And also if you were to look at column 2, line 55 and below, the paragraph continues to about line 60. Is it talking about a preferred length for the UE-specific scrambling sequence?

A. Yes, it is talking about the preferred length of 40 bits.

Q. So the length of the scrambling sequence is not limited to the length of the preferred embodiment; is that correct?

A. That's right.

Q. Now, going back to our discussion about the meaning of the word apparatus, I have here on the screen CDX-522. Does the specification give you any more guidance regarding what an apparatus can be?

A. Yes. Looking at the excerpt that's from the patent, CX-3, column 1, lines 65 to 67, it says a code is produced for use in scrambling, which would be done at the base station and descrambling at the user equipment.

So the text clearly is about producing a code and it could be used either for scrambling at the base or descrambling at the user equipment.

Q. Turning next to CDX-523, what is Samsung's construction for the term "apparatus"?

A. Originally there was no construction, but in the prehearing brief Samsung says that the apparatus, if construed, should be limited to a base station.

And what they have done, which I don't agree with, they have taken the -- they have looked at the phrase "used for scrambling" and they basically just -- which is its code used for scrambling. And they have separated the "used for scrambling" which modifies the word "code" and just focused on the action step. They have imposed an action step in this apparatus claim and that action step is scrambling. And that is incorrect because a code used for scrambling is, I call it a big noun, a descriptor of the scrambling sequence.

JUDGE LUCKERN: Doctor, you are doing a great job. If you can move that mic to get closer to the mic so everybody in the room can hear you, that's all. I think that mic can be moved around if you want to. You are doing a great job but so people in the back can hear

you. Go ahead.

THE WITNESS: I'm sorry.

BY MR. GUPTA:

Q. Turning next to CDX-524, what is your opinion regarding the meaning of half rate convolutional code?

A. So on the chart, on the CDX-524, is InterDigital's proposed construction, a half rate convolutional code is an algorithm used by the half rate convolutional encoder. I agree with that.

In the excerpt from the patent, CX-3, column 3, lines 9 to 12, it is clear that the half rate convolutional code is an algorithm that's internal to the convolutional encoder whose output is a scrambling code. So the patent clearly supports that and I think this would be, this interpretation is clear, construction would be clear to someone of ordinary skill in the art.

Q. Turning to CDX-525, which is up on the screen, what is your opinion regarding the meaning of a code used for scrambling as it appears in claim 1 to one of ordinary skill in the art?

A. So InterDigital's construction is shown on the chart, a scrambling sequence. And if I look at the phrase "a code used for scrambling," this used for scrambling is a modifier of the word code. So it is, as I said before, a big noun, a code used for scrambling. The "used for scrambling" gives an indication of what type of code it is.

And it is my opinion that someone of ordinary skill in the art looking at that would say, okay, I know what that is, that's a scrambling code. And, in fact, that's the words that are used in the title of the patent, generation of a UE-specific scrambling code.

So a scrambling code, this is what it would be interpreted as, in the patent uses the word scrambling sequence and scrambling code interchangeably many times. So that's how I -- that's why I support the construction that a code used for scrambling is a scrambling sequence.

And the, an important aspect is illustrated, again, in the preferred embodiments that this scrambling sequence, the same UE-specific scrambling sequence which is

denoted in figure 3 as RUE1 through RUE40 is also denoted, the same sequence here, RUE1 through RUE40, it is the same scrambling sequence that's produced at the base station and produced at the receiver.

And there is also further support, there is no use of the phrase descrambling code in the patent. So when people use the word scrambling sequence, it is the same scrambling sequence that you use at the base station for scrambling and the very same scrambling sequence that you use for descrambling.

MR. GUPTA: Your Honor, we would like to go on the confidential record for the next slide.

JUDGE LUCKERN: Whose information is it?

MR. GUPTA: It is Qualcomm confidential information.

JUDGE LUCKERN: Anybody who is not subscribed to the protective order has to leave the hearing room. We're on the confidential record. Go ahead, Mr. Gupta.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

BY MR. GUPTA:

Q. Turning to CDX-527, what is Samsung's construction for a code used for scrambling?

A. Samsung doesn't construe a code used for scrambling. They construe a scrambling, a high speed shared control channel. And their construction is applying a scrambling sequence to unscrambled data prior to transmission of the data on the control channel.

So if you look at the phrase, the element in the patent, a code used for scrambling, a high speed shared control channel, what they have done, clearly, it is clear to me that the "used for scrambling" modifies "code." They have separated that here. They have severed the construction, separating the noun from the modifying phrase, a code used for scrambling, and they have now inserted a process step into an apparatus claim, scrambling a high speed shared control channel.

So they are focusing on the actions of scrambling. This code -- this claim is about production of a code used for scrambling. And

I don't agree with Samsung's construction.

Q. Turning next to CDX-528, how would the claim have to be rewritten to be consistent with Samsung's construction?

A. Well, on CDX-528 is a way that I came up with, if the claim were written this way, which it is not, I would say it supports the construction. So I will just read it.

A base station comprising an input configured to accept a user identification comprising L bits and a half rate convolutional encoder for processing at least the bits of the user identification by a half rate convolutional code to produce a code and applying this produced code at the base station for scrambling a high speed shared control channel.

Q. Turning to the next term, on CDX-529, what is your opinion regarding the meaning of user identification which appears in claim 1 and in claim 3?

A. CDX-529 is from the patent CX-3, figure 1A. And InterDigital's proposed construction, user identification, a sequence of bits for a particular user equipment that

explicitly distinguishes it from other user equipment.

And here it is clear that the UE ID is represented by the L bit word, the first bit being X sub UE1, and the L bit being X sub UEL. So this is the sequence of bits that uniquely or explicitly identifies the UE and, thus, distinguishes it from other user equipment.

Q. Turning next to claim 3, CDX-530, which is up on the screen, what is your opinion regarding the meaning of 48-bit code for use in descrambling to one of ordinary skill in the art?

A. So here on the CDX-530 is InterDigital's proposed construction, which I agree with, a 48-bit code for use in descrambling, a sequence of 48 bits output from the half rate convolutional encoder used to generate a scrambling sequence that is used for descrambling the control channel.

So here the phrase 48-bit code for use in descrambling is also a very big noun. And here the modifier is the modifying phrase is "for use in descrambling." So it indicates the code that you produce, what the intended use

is. And the intended use is descrambling.

And the preferred embodiment gives an illustrative example of how you would descramble with this code. So you would take the received control channel, you would mix it with the UE-specific scrambling sequence at the UE, the very same one that was generated at the transmitter, to produce the descrambled, encoded control channel data.

Q. Now, the figures at the bottom, figure 2A and 2B, those are also from the CX-3; is that correct?

A. Yes. Yes. And they describe the, as I described before, starting with the UE ID and how you generate the scrambling sequence, RUE, RUE1, RUE40 which is shown in figure 4, RUE1 at the input to element 20, the XOR operation, RUE1, RUE40.

Q. Turning next to CDX-531, which is Samsung's construction for the term 48-bit code for use in descrambling.

A. So Samsung doesn't construe the term 48-bit code for use in descrambling. What they are construing is descrambling a high speed shared control channel. And their construction

says applying a scrambling sequence to the scrambled data received on the control channel to recover the data scrambled prior to transmission.

So if you look at the phrase a 48-bit code for use in descrambling, what they have done is they have, again, separated the descriptive phrase for use in descrambling, the modifying phrase, from the 48-bit code.

And now they, again, insert a process or action step, descrambling the high speed shared control channel. And this construction is even more restrictive in that they restrict the input to the descrambling process to descramble data received on the control channel.

And then they also -- the output of the descrambling process to recover the data scrambled prior to transmission, these restrictions don't appear in the body of the patent or in the claim. They are just -- that's just the preferred embodiment.

So what they are doing is their construction is restricting the claim to the preferred embodiment.

Q. Now switching topics a little bit, going to the 3GPP standard, on CDX-532 can you explain how the part 1 information is processed as described in the 3GPP standard?

A. Yes. So referring to CDX-532, we start with a part 1 information. This is the original 8 bits that have to be extracted by the receiver. It has 7 bits for channelization codes and one bit for the modulation type to enable proper processing of the data channel.

So the part 1 information is appended with eight zero bits. It goes through a channel coding operation. Here, the output of the channel coding operation is a rate one-third convolutional encoder.

If we could advance the animation. So the one-third convolutional encoder had a 16-bit input and it produces a 48-bit sequence. And then that 48-bit sequence then goes through a rate matcher, which punctures or removes the 8 bits producing the 40 bits of rate match channel encoded part 1 information.

And then using the 40-bit UE-specific scrambling sequence, which is the subject of the patent, these two signals are mixed and it

produces the transmitted control channel part 1 signal.

Q. Turning to CDX-533, what is the output after each of those processing steps that are highlighted in yellow?

A. Yes. So we start with the eight original part 1 bits. After we append the 8 zero bits, we go through the rate one-third convolutional encoder and the output is referred to as the encoded part 1 bits.

Then we rate match and remove or puncture 8 bits and that's referred to as the encoded and rate matched part 1 bits. Then we mix it with the UE specific scrambling sequence and, finally, we get to the -- it is a mouthful -- encoded rate matched and scrambled part 1 bits.

Q. Turning back to the patent, and I have CDX-534 up on the screen, how does the patent describe descrambling?

A. So if we -- if you could enlarge the highlighted material, this is from the patent, CX-3, the first excerpt is from column 1, lines 31 to 35. And the second excerpt is from column 1, lines 39 to 41.

So what the patent describes as the goal of descrambling is to obtain its part 1 information. After all, that's what the receiver needs for proper processing. Without the part 1 information, it could not recover the data on the data channel.

So it monitors up to the four active control channels. It uses its UE-specific scrambling sequence, because it knows that's the way you can identify if the control channel information is intended for it, whether it is the intended receiver.

So as the second excerpt shows, columns -- lines 39 through 41, the UE will descramble using its UE-specific scrambling sequence, the data carried on part 1 of the control channel.

Q. Now, does the 3GPP standard mandate a particular receiver for descrambling?

A. No. Generally most of the standards bodies I am familiar with, and, in particular, the 3G standards, they are very explicit in talking about the transmitter architecture and the transmitted signal. So it is very clear for vendors who are building receivers, that is

UE, what the transmitted signal is. But they offer very little guidance in terms of the architecture of the receiver, other than generalities about compatibility and, you know, what frequency band you operate in.

But there is very little guidance offered about receiver architectures.

Q. So what possible architectures would one of ordinary skill in the art know how to make?

A. So if we look at CDX-535, here I have the, on the left, the transmitter architecture highlighting the functional blocks that I went through. You start with 8 original part 1 bits. You go through the channel coding operation. You go through the rate matching operation, and you go through a masking operation.

So one of ordinary skill in the art would know that the receiver has to undo the operations that are done in the transmitter. And it would do them in a logical, at least logically inverse order. So one logical view of receiver architecture is to first, if there is masking, you must do demasking. If there is

rate matching, you must do de-rate matching. If there is channel coding, you must do channel decoding.

One of ordinary skill in the art would also know because the sequence has been masked or scrambled that an essential component would be the scrambling sequence that you generated or produced at the transmitter, you have to generate it or produce it at the receiver.

And we will see that I will talk about the three different architectures. They will look somewhat different but they will have three common points. They will all have the same input; the receive control channel signal, the encoded rate matched, and scrambled part 1 bits, they will all use the UE-specific scrambling sequence, and they will all produce the eight original part 1 bits at the output.

Q. Turning next to CDX-535 -- 538, excuse me -- what other architectures are possible to one -- as recognized by one of ordinary skill in the art?

A. So on CDX-536, I have repeated the exemplary receiver architecture here on the left and the exemplary receiver architecture

too on the right is a highly integrated receiver, which combines the descrambling, de-rate matching and decoding in one system.

Communications engineers often do this, if they want to reuse some existing technology, some software, some hardware that they are familiar with, and they might build an integrated receiver that does all of the operations done at the transmitter but does it in an integrated fashion.

But the commonality with architecture 1 and architecture 2 is that they both have the same input, the encoded, rate matched, and scrambled part 1 bits. They both use the UE-specific scrambling sequence to assist in descrambling. And they all reproduce the 8 original part 1 bits at the output.

Q. Now, turning to CDX-537, how are these receiver architectures consistent with the teachings of the '579 patent?

A. So if you -- if we have an excerpt from the patent, CX-3, the top excerpt is from column 1, lines 31 to 35. The CX-3, column 1, the second excerpt is from column 1, lines 39 to 41.

The patent makes it clear that the goal is to recover or obtain its part 1 information. It says you monitor the control channels, the received signal, and it uses the UE-specific scrambling sequence for the purpose of descrambling.

So the UE descrambles the second excerpt, the data carried on part 1, that's the information it needs, of the control channel using its scrambling sequence. So the patent is very clear and consistent in what the intent of descrambling is. And the critical thing is you need to use the scrambling sequence for the purpose of descrambling. The very same scrambling sequence that you produced at the transmitter is produced at the receiver for the purpose of descrambling.

Q. And on CDX-537 is also figure 4 from the '579 patent; is that correct?

A. Yes. I was referring, again, to the very -- in figure 4, to the very same specific scrambling sequence, RUE1 through RUE40 on figure 4. Thank you.

Q. Switching topics, Dr. Gitlin, have you formulated an opinion regarding infringement by

the Samsung phones?

A. Yes.

Q. And what is your opinion?

A. My opinion is that the Samsung phones infringe claims 1, 3, and 4 of the '579 patent.

Q. And up on the screen I have CDX-538, which lists, again, the asserted claims 1, 3, and 4 on the left-hand side and provides a road map for where the infringement is discussed for each of the elements that appear in there in the corresponding table shown on the right-hand side. Is that accurate?

A. Yes.

MR. GUPTA: Your Honor, at this point we would like to again move to the confidential record. We will be discussing both Samsung and Qualcomm confidential information.

JUDGE LUCKERN: Okay. Anybody not subscribed to the protective order and not connected with -- well, we have Qualcomm in there. So anybody not subscribed to the protective order has to leave the hearing room.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

BY MR. GUPTA:

Q. Turning to CDX-568, Dr. Gitlin, what opinions have you provided here in your testimony today?

A. So on CDX-568 it summarized my opinions and the three categories of claim construction that InterDigital's claim constructions are consistent with how one of ordinary skill in the art would understand the asserted claim terms of the '579 patent.

And under infringement, all of the accused handests infringe all the asserted claims of the '579 patent. And under domestic industry, claim 3 of the '579 patent covers InterDigital's R6 PC card.

Q. Thank you.

JUDGE LUCKERN: Mr. Gupta, would you want that testimony on CDX-568 confidential?

MR. GUPTA: No, Your Honor.

JUDGE LUCKERN: All right. Off the record.

(Discussion off the record.)

JUDGE LUCKERN: Go ahead, Mr. Gupta.

MR. GUPTA: Your Honor, I have no

further questions at this time.

JUDGE LUCKERN: All right. We better take a ten-minute break. The reporter has been going two hours. Then we're going to start with the cross-examination. Okay.

(A recess was taken at 10:32 a.m., after which the trial resumed at 10:43 a.m.)

JUDGE LUCKERN: On the public record. Mr. Stephens?

MR. STEPHENS: Yes, Your Honor.

JUDGE LUCKERN: Doctor, you can see Mr. Gupta, can't you?

THE WITNESS: Yes.

JUDGE LUCKERN: You know, just not to see what he looks like. If he makes any motion, hands up or stands up or says something, it would be better if you don't answer. If you answer, you answer, whatever it is. We're back on the public record. Let's start the cross-examination, Mr. Stephens, please, with your hostile witness. Only because of this proceeding are you hostile. Go ahead.

CROSS-EXAMINATION

BY MR. STEPHENS:

Q. Good morning, Dr. Gitlin, I am Garland Stephens. I will be asking you some questions now.

A. Good morning.

Q. Now, it is true that in this case, you have expressed no opinion on infringement under Samsung's construction of claim 1, right?

A. Samsung's -- that's true, yes.

Q. But you did consider that question, right?

A. The Samsung, as I said in my -- yes, I did. Samsung's opinion is that the claim 1 is restricted to an apparatus.

Q. And under that construction, the Samsung handsets that are accused in this case do not infringe claim 1, right?

A. Right. The UE is not base stations.

Q. Okay. Now, the accused handsets also don't transmit the high speed shared control channel, right?

A. That's right.

Q. They only receive it, right?

A. Yes.

Q. Okay. They also don't scramble the received high speed shared control channel,

right?

A. That's right.

Q. In fact, they're not capable of scrambling the high speed shared control channel, right?

A. That's correct.

Q. And when I said they're, you understood I meant the Samsung accused handsets, right?

A. I would say that capable is a strong word. I mean, they don't, but whether they have that capability, they might.

Q. Okay. But you don't know one way or another whether the accused Samsung handsets in this case are capable of scrambling high speed shared control channel, right?

A. I don't know.

Q. Okay. But you do know that they don't do it?

A. According to the figure of the block diagrams, they don't do it.

Q. Now, it is your opinion that claim 1 actually covers an apparatus that's not capable of scrambling a high speed shared control channel, right?

A. That's right, yes.

Q. Now, base stations do transmit a high speed shared control channel, right?

A. Yes.

Q. And base stations scramble the high speed shared control channel that they transmit, right?

A. Yes.

Q. Now, you mentioned the construction of the word apparatus a moment ago. Apparatus is not a term of art in this field, is it?

A. Well, apparatus is a general term that can apply to just about anything, but --

Q. Okay. Well, it doesn't have a meaning, it has no special definition in this patent, right?

A. Well, in claim 1, it has the meaning that it is either a base station or user equipment.

Q. I understand that's your opinion, but there is no definition in the patent of the word apparatus, right?

JUDGE LUCKERN: If you want to take the time to look through the patent, you can. However you want to proceed, Doctor.

BY MR. STEPHENS:

Q. That's Exhibit CX-3.

A. So apart from claim 1, I don't see the word apparatus in the claim.

Q. So apart from claim 1, there is no definition of apparatus?

A. Claim 1 and claim 2, excuse me.

Q. Okay. But apart from those claims, there is no definition of the word apparatus, right?

A. In the patent.

Q. Okay.

A. I would agree.

Q. Now --

JUDGE LUCKERN: Oh, I mean, you have been qualified as an expert in this art and you have indicated what a person of ordinary skill in the art would be, you say around 2002. Would this -- forget the patent. I mean, let's not talk about the patent, but would a person skilled in the art in 2002 in this field make reference to something that's an apparatus or not, or is this something that would not come up in this technology? Do you understand my question?

THE WITNESS: Yeah. People could say, and it would be clear from the context and meaning what pieces of equipment, what object you were referring to.

JUDGE LUCKERN: I mean, if you use a tool or a hammer, I don't know, an apparatus, I can go to the dictionary and we can get a dictionary definition of apparatus.

Is this something that -- I mean, I don't have a Webster's handy right now, but is that -- I don't know if you know what a dictionary definition is of apparatus, but would that be something that -- well, you don't know, how could you give me the answer?

THE WITNESS: I think if you ask someone, you know, someone skilled in the art, we have the following apparatus, they might use that term and look at, oh, yeah, I understand what you mean.

JUDGE LUCKERN: But say in 2002, would a person of ordinary skill in the art, as you define it, could be referring to different things, in other words, one person was looking at something in this and technology and say that's an apparatus, and they look at something

else, which would be different, and say, well, that's an apparatus? And look at something else that has four pieces, and that's an apparatus? Do you understand what I am trying to ask you?

THE WITNESS: Yeah, it is a general term.

JUDGE LUCKERN: All right. Go ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. Okay. Nate, could we put up CDX-521, please. Now, Dr. Gitlin, this is a slide that you testified about, right?

A. Yes.

Q. And you testified that apparatus in claim 1 is distinguished from the user equipment and base station phrases that are used in the other claims, right?

A. Yes, of course, it is in claim 2 as well.

Q. Okay. Claim 2 is not asserted, right?

A. Correct.

Q. Okay. And your view was that apparatus must mean base station or user equipment because base station and user

equipment are recited in the other claims specifically, right?

A. If I look at the claim and production of a code used for scrambling, it is clear to me that's a scrambling code or a scrambling sequence, and it is clear from the patent that a code, a scrambling sequence is used both at the base station and the user equipment.

Q. Now, I think you have already said the Samsung handsets, as far as you know, don't scramble the high speed shared control channel, right?

A. Yes.

Q. But base stations do, right?

A. Yes.

Q. And in the claims in the patent, the claims specifically distinguish between user equipment and base station on that basis, right?

A. Yes.

Q. So Nate, if we could have up Exhibit RDX-12. That's not it. Sorry, 14. So, Dr. Gitlin, what I have done here is to just highlight in the claims where the words descrambling and scrambling are used.

And you would agree that everywhere a claim uses user equipment in the preamble, that claim then recites descrambling, right?

A. May I just look at your highlighting?

Q. Of course.

A. Yes.

Q. And everywhere the claim -- preamble recites a base station, the body of the claim recites scrambling, right?

A. Yes.

Q. That's consistent with the idea that base stations scramble and user equipment descrambles, right?

A. Well, my view is if you look at the language in all of the claims but claim 1, it says a 48-bit code for use. So what it is telling you is you have a 48-bit code, and it is giving you an indication of its intended use. So the red ones which have user equipment is intended for descrambling. And we discussed claim 3.

And the base station, it says a code for use in scrambling. And that's its intended use.

Q. Okay.

A. So I am not making the same -- I am trying to give you my understanding of this.

Q. So it is your view, then, when a claim uses the phrase code used for scrambling, the intended use of that code in that claim is to scramble, right?

A. The language is important here. It is different. So in claim 3, it says for use in descrambling. It tells you its intended use. And in claim 1, it doesn't use that language.

Q. In fact, it uses a code used for scrambling, right?

A. Yes.

Q. Okay. And we also see -- well, let me ask a different question. You said that there was no use of the phrase descrambling code in the patent, right?

A. That's right.

Q. But there is, however, use of the phrase a code for use in descrambling, right?

A. Yes.

Q. And that is consistently used in the claims in connection with claims that recite user equipment, right?

A. Yes, it is, but it is clear to me from

the purpose, the generation, the title is a generation of a user-specific scrambling code, and that is the scrambling code. And the patent uses the word scrambling code and scrambling sequence interchangeably. And as I tried to make clear, the scrambling sequence is the very same sequence that's produced at the base station and produced at the receiver.

So that's the way I have interpreted a code used for scrambling.

Q. Okay. So you have interpreted a code used for scrambling to mean a scrambling sequence, right?

A. Yes, as I described in my direct testimony.

Q. And it is your testimony that a scrambling sequence is a code used for scrambling or descrambling, right?

A. The scrambling sequence, yes, it is consistent with a code used for scrambling, I have made that linkage.

Q. Not just a code used for scrambling. It is your testimony that it is also a code used for descrambling?

A. It is a scrambling sequence that's

used for scrambling or descrambling.

Q. So a scrambling sequence in your view is a code used for scrambling or descrambling, right?

A. Yes.

Q. Now, Nate, if you could just blow up claim 1 there.

A. Well, I mean, the language, the language is code used for scrambling. So the code used for scrambling, the use for scrambling modifies the word code. So that's a scrambling sequence.

Q. Okay. It modifies it in a way that means the code is intended to be used for scrambling, right?

A. It is a scrambling sequence. It is intended to be used for scrambling or descrambling.

Q. Okay. So we should --

JUDGE LUCKERN: Can I just make sure I follow you? I mean, you people are way ahead of me right now. You won't be when I issue my ID. I want to make sure. Your answer: I mean, the language is code used for scrambling, so the code used for scrambling, the used for

scrambling modifies the word code. So that's a scrambling sequence.

It is a scrambling sequence, it is intended to be used for scrambling or descrambling. You are talking about the language in this claim 1?

THE WITNESS: Yes, I am, Your Honor.

JUDGE LUCKERN: Okay. Go ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. Okay. So if we were to give effect to your interpretation of code used for scrambling in claim 1, we should rewrite it to say code used for scrambling or descrambling, right?

A. You could.

Q. And that would be consistent with your opinion, right?

A. Yes.

Q. Now, Nate, if we could pull up CX-3, figures 3 and 4. Dr. Gitlin, I believe you testified about these figures, right?

A. Yes.

Q. And this figure and the text that describes it makes clear what I think you have already testified to, that a base station

scrambles and a user equipment descrambles, right?

A. Yes.

Q. So what we see in figure 3 there, according to the patent, happens in a base station, right?

A. Yes.

Q. And what we see there in figure 4 happens in user equipment, right?

A. Yes.

Q. And it specifically separates the way it uses the word scramble and descramble to describe those two figures, right? Nate, could you go to column 2, lines 61 to 66? So if you look at the description there, it says figure 3 is a simplified diagram of a base station scrambling encoded data. Do you see that?

A. Yes.

Q. It doesn't say scrambling or descrambling encoded data, right?

A. You read it -- I agree with what you read.

Q. And figure 4, it says, is a simplified diagram of a user equipment for descrambling a high speed shared control channel, right?

A. Yes.

Q. And it doesn't say scrambling or descrambling, right?

A. Right.

Q. Okay. Now, if we could have CDX-527, please. Now, it is your opinion that Samsung's construction improperly inserts a process step into an apparatus claim, right?

A. Yes.

Q. But I think you have testified already you are not a patent lawyer or a patent agent, right?

A. That's correct.

Q. So you are not an expert on what it means to insert a process step into an apparatus claim, right?

A. I think I also used the words action step or verb.

Q. Okay. But either way, you are not an expert on what the legal effect of that might be, right?

A. No, I am not.

Q. And you are not an expert on whether or not that's improper, right?

A. I'm interpreting this from the

perspective of how someone of ordinary skill in the art would interpret it.

Q. Okay. But you are not an expert on whether or not it is improper to put a process step into an apparatus claim, right?

A. I am not an attorney or a patent agent.

Q. And you are not an expert on that type of claim interpretation issue, right?

A. I just gave my opinion.

Q. Okay. But you are not an expert on that area, right? You are not an expert on that type of claim interpretation?

JUDGE LUCKERN: I don't think he has been qualified as an expert in that area, Mr. Stephens. If you want to pursue that, go ahead. Let's move on. We're under a tremendous time bind.

MR. STEPHENS: Understood, Your Honor. I will move on.

BY MR. STEPHENS:

Q. Now, is your opinion based on the idea that Samsung's interpretation requires that the apparatus, in order to practice the limitations of the claim, be operated?

A. My interpretation of --

Q. Let me rephrase the question. Your interpretation that we see reflected in CDX-527 is founded on the idea that Samsung's claim construction requires that the handset actually be turned on, operate, and scramble a high speed shared control channel, right?

A. The claim is about production, the claim in claim 1 is about production of a scrambling sequence. And that is what the claim is about, a scrambling sequence for use at both the base and the user equipment. So I am not sure I understand your question.

Q. Okay. I guess what I am asking is when you say that it improperly -- Samsung's interpretation improperly inserts a process step into an apparatus claim, your opinion is founded on the idea that Samsung's interpretation required that those actions actually occur in order to infringe, right?

A. Well, the claim construction was a code used for scrambling. And you're interpreting scrambling a high speed shared control channel. So if I just look at that sentence, scrambling -- or phrase scrambling a

high speed shared control channel, that's an action, scrambling. That's --

Q. Okay. But if Samsung's interpretation were that the code be for performing that action as opposed to requiring the claim to perform that action, or the claimed apparatus to perform that action in order to meet the limitations, that's not what you were basing your interpretation on, right?

A. I'm sorry, can you ask me the question again?

Q. Yes.

JUDGE LUCKERN: I will read the question again. Okay. But if Samsung's interpretation were that the code be for performing that action as opposed to requiring the claim to perform that action, or the claimed apparatus to perform that action in order to meet the limitations -- that's a pretty run on question. Can you rephrase it?

MR. STEPHENS: Absolutely, Your Honor.

JUDGE LUCKERN: Please.

BY MR. STEPHENS:

Q. So, Dr. Gitlin, if Samsung's proposed construction, applying a scrambling sequence to

unscramble data prior to transmission of the data on high speed shared control channel, if that were an intended use of the code, rather than a process step that had to be performed, that's not the view of the claim that you were applying when you expressed the opinions that you have in CDX-527, right?

A. I'm still having trouble with the question.

Q. Okay. Let me ask it differently. You were not viewing Samsung's construction as an expression of intended use for the code, right?

A. The construing, scrambling a high speed share control channel used for scrambling is the way I looked -- the way I have interpreted it, it modifies code. So now what you have construed is scrambling a high speed shared control channel. It doesn't talk about the code at all. So I am having trouble making that connection.

Q. And Samsung did not propose to construe that part of the claim, right, the code used for? They just construed starting with the word scrambling, right?

A. Yes.

Q. Okay. So the phrase code used for would still be there, right, in the claim, as construed by Samsung? Right?

A. I am trying now to put the whole phrase -- so you are saying it is a code used for applying a scrambling sequence to unscramble data prior to transmission?

Q. That's right.

A. So --

Q. That's not the construction that you opined on here, right? Could we have CDX-528, please? If you look at the claim there, you can see that the construction I just mentioned is not the one you were opining about, right?

A. On CDX-528 is my attempt at saying -- to write, if the claim were written this way, then I would say that the -- that this would be what the construction means to me. One attempt.

Q. So you were not construing Samsung -- or you were not understanding Samsung's construction to be a code used for applying a scrambling sequence to unscramble data, right? Right? That's not the way you understood it when you expressed the opinion that we see in

CDX-528, right?

JUDGE LUCKERN: Well, we have two questions there, Mr. Stephens. He started to say I -- then you said is that the way you understood it when you expressed your opinion? Can you just rephrase the question? Just ask one question. You are doing a great job. But just ask one question. Let's get an answer. Then ask the next question.

MR. STEPHENS: Fair enough, Your Honor.

JUDGE LUCKERN: You are doing a great job, but, please, I want this record clear. And the witness, he is doing a great job, but --

MR. STEPHENS: I will rephrase, Your Honor. I understand.

JUDGE LUCKERN: Go ahead.

BY MR. STEPHENS:

Q. So, Dr. Gitlin, the understanding that you express in CDX-528 is not the -- does not include the phrase a code used for applying a scrambling sequence to unscramble data prior to transmission of the data on an HS-SCCH, right?

A. Yes, because the sentence that you

constructed is not -- I don't think it is a good English sentence.

Q. Okay. Now, Nate, if we could have up simultaneously CDX-526 and CDX-530.

MR. GUPTA: Your Honor, what is up on the screen is Qualcomm confidential information.

MR. STEPHENS: Thank you. We will need to go on the confidential record.

JUDGE LUCKERN: All right. Confidential record. Anybody not associated with -- well, anybody not subscribed to the protective order better leave the hearing room.

(NOTE: Trial did not go into confidential session. See later discussion.)

JUDGE LUCKERN: So we have on the screen simultaneously CDX-526 and CDX-530. Go ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. And, Dr. Gitlin, the boxes we see there that say, InterDigital's proposed construction, those reflect your opinion of the proper construction of the phrases there, right?

A. Yes.

Q. And so your construction of a code used for scrambling is a scrambling sequence, right?

A. Yes.

Q. And I think you have already testified that does not actually require scrambling, right?

A. That's right.

Q. And then on CDX-530, we see that your view of the appropriate construction for 48-bit code for use in descrambling and that does not include a scrambling sequence, right?

A. I'm sorry.

Q. I'm sorry, let me ask it differently.

Your construction on the right side, a 48-bit code for use in descrambling, does require descrambling, right?

A. It is -- it is to generate a scrambling sequence with the intention to be used in descrambling.

Q. Nate, could you put up Dr. Gitlin's 6/27 deposition at page 434, lines 13 to 16.

JUDGE LUCKERN: And do you want the paper copy there?

THE WITNESS: Yes, I do.

JUDGE LUCKERN: Can you give him a paper copy also?

MR. STEPHENS: He should have one there.

JUDGE LUCKERN: Make sure --

THE WITNESS: Which is the exhibit?

JUDGE LUCKERN: -- so he can follow it, et cetera, et cetera, et cetera.

MR. STEPHENS: Gitlin depo, volume 2, 6/27/08.

THE WITNESS: Page 434?

BY MR. STEPHENS:

Q. Yes.

JUDGE LUCKERN: So you want page 627 -- no, no, page 434.

MR. STEPHENS: That's correct.

JUDGE LUCKERN: Lines 13 to 16. You said 6/27 deposition, what does that mean?

MR. STEPHENS: June 27th, Your Honor.

JUDGE LUCKERN: Okay, okay, okay.

MR. STEPHENS: I will try to be more precise.

BY MR. STEPHENS:

Q. Dr. Gitlin, you were asked the question: "So it is your opinion that claim 3

requires descrambling, correct?"

Your answer was: "It requires, for use in descrambling, so yes."

A. Yes, that's what it says.

Q. And you stand by those words today, right?

A. Yes.

Q. So in your view, then, a 48-bit code for use in descrambling requires for use in descrambling, but a code used for scrambling does not require for use in scrambling, right?

A. What I -- in the context of this, in my answer --

Q. Could you just answer my question first? Then if you need to explain, you can.

JUDGE LUCKERN: If you can answer.

THE WITNESS: Can you repeat it, please?

JUDGE LUCKERN: I will read it back. However you want to answer, sir. The question was: So in your view, then, a 48-bit code for use in descrambling requires for use in descrambling, but a code used for scrambling does not require for use in scrambling? If you understand the question, can you say yes, no, I

don't know? Or whatever it is. Go ahead.

THE WITNESS: I understand the question. And my -- but it --

BY MR. STEPHENS:

Q. If you could just answer yes, no, or I don't know, and then explain.

JUDGE LUCKERN: I am the judge. I told him that. You are not going to rule over me. It is yes, no, however you want to proceed.

THE WITNESS: It was a -- can you please repeat the question for me?

JUDGE LUCKERN: The question is as follows. I will make sure that I go back to Mr. Stephens' question. Now, this is the question.

"Question: So in your view, then, a 48-bit code for use in descrambling requires for use in descrambling, but a code used for scrambling does not require for use in scrambling, right?" That is the question. That's what you want answered, correct, Mr. Stephens?

MR. STEPHENS: That's right, Your Honor, you have read it correctly.

JUDGE LUCKERN: Yes or no or I don't know, doesn't make sense, however you want to answer.

THE WITNESS: So a code used for scrambling as I have testified refers to a scrambling sequence, which has use in scrambling and descrambling. And a code, the English is slightly different, a code for use in descrambling says that the intended use of the code is restricted to descrambling.

BY MR. STEPHENS:

Q. So a code used for scrambling, in your opinion, then, does not require that the code be for use in scrambling, right?

A. It is -- it can be used either, it is a scrambling sequence that can be used either in scrambling or descrambling.

Q. So it does not require use in scrambling, right? Descrambling is enough, in your view?

A. Are you asking me about a 48-bit code for use in descrambling or a code used for scrambling?

Q. A code used for scrambling.

A. A code used for scrambling is a

scrambling sequence, and it could be used either, it is produced -- the claim 1 is about the production of the code, a scrambling sequence, which could be, as I said in my direct testimony, a scrambling sequence is used for scrambling or descrambling.

Q. Okay. So a code used for scrambling, in your opinion, does not require that that code be for use in scrambling, right? It can be for use in scrambling or descrambling?

A. That's right. When you say it that way, for use in scrambling, it gives you the intended use of the code.

Q. Okay. And it is your view that a code that's only for use in descrambling meets that limitation, right?

A. It could be used either for scrambling -- I'm sorry, you said for use in?

Q. A code that's used, that is for use only in descrambling meets the limitation, a code used for scrambling, in your view, right?

A. Yes.

Q. Okay. But a code, a 48-bit code for use in descrambling must be used for descrambling or must be for use in

descrambling?

A. Yes. It clarifies the intended purpose, so the intended purpose is descrambling.

Q. Okay.

JUDGE LUCKERN: Should we be on the confidential with a lot of this stuff, Mr. Stephens?

MR. STEPHENS: I think we can go off.

JUDGE LUCKERN: What I just heard --

MR. STEPHENS: I think we can go off the confidential record. And I don't think --

JUDGE LUCKERN: Let's go -- well, how about what I just heard, does that all have to be confidential?

MR. STEPHENS: No, Your Honor, none of that has to be.

JUDGE LUCKERN: Let's go off the record.

(Discussion off the record.)

JUDGE LUCKERN: We're on the public. Go ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. Dr. Gitlin, the claims include the phrase HS-SCCH, right?

A. Yes.
Q. And the patent refers to UE ID, right?
A. Yes.
Q. And HSDPA?
A. Yes.
Q. These are terms that are defined by 3GPP, right?
A. Yes, this whole system is in the context of 3GPP.
Q. Okay. And those terms don't have any ordinary meaning outside the context of 3GPP, right?
A. Can you repeat the three terms?
Q. HS-SCCH, UE ID, and HSDPA?
A. Well, you know, HSDPA is a 3GPP service. UE ID is a user equipment ID. It might be used in other contexts. I mean, it is not necessarily restricted to this --
JUDGE LUCKERN: Speak up, please. I know the people in the last row can't hear you, Doctor.
THE WITNESS: I'm sorry.
JUDGE LUCKERN: Talk into the mic or something.
THE WITNESS: Let me move the mic.

Sorry. So UE ID or user equipment ID is a fairly general term and might be used in other contexts.

BY MR. STEPHENS:

Q. Okay.

A. There might be other systems which have a high speed shared control channel. You know, many systems are running out of acronyms.

Q. But you are not aware of any, right?

A. Not at the moment.

Q. Okay.

JUDGE LUCKERN: Let me just make sure I understand. Were those three terms, in your opinion, Doctor, they don't have any ordinary meaning outside the context of 3GPP; is that correct, those three terms? That was the question. Okay. And those terms don't have any ordinary meaning outside the context of 3GPP? You said what are the three terms and we got on the record from Mr. Stephens what the three terms are.

So my question to you, are those three terms, they don't have any ordinary meaning outside of the context of 3GPP?

THE WITNESS: And then I said the UE

ID, user equipment ID is a fairly general term, and I wouldn't be surprised if it was used in another context. And high speed shared control channel, I wouldn't be surprised if it was used in other contexts.

JUDGE LUCKERN: How about the other two terms, HS-SCCH and also HSDPA?

THE WITNESS: Well, there were -- the HSDPA is a 3GPP service. So that's pretty clear, that's defined in the context of the 3GPP.

And then the word high speed shared control channel, of course, is defined, has particular meaning in the HSDPA service. But if you just look at the words high speed shared control channel, I mean, I could look at a network switch and it has a control channel and it is high speed, and I share it, so I wouldn't be surprised -- you know, there are systems that people would use that term. It seems that's fairly generic, like user equipment ID. But I would agree HSDPA is very specific, defined by the 3GPP.

JUDGE LUCKERN: Go ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. Dr. Gitlin, if you would take a look at column 1 of the '579 patent, and that's CX-3. Nate, if you could pull that up, just that page. Nate, if you could pull up the first two paragraphs under background, including the word background.

Dr. Gitlin, you would agree that the background section of the '579 patent is specific to the HSDPA service provided by 3GPP -- or defined, rather, by 3GPP, right?

A. That's what -- yes, it is.

Q. So a person of ordinary skill, to understand the background that we see here in the patent, would need to be familiar with the relevant 3GPP standards, right?

A. Well, they would need to understand how HSDPA --

JUDGE LUCKERN: Speak up, please.

THE WITNESS: They would need to understand how HSDPA works.

BY MR. STEPHENS:

Q. And for that, they would need to consult the working papers and standards that are produced by 3GPP, right?

A. For the -- yes, to work on a system of HSDPA, you would have to be familiar with the standards of HSDPA.

Q. And, in particular, in April of 2002, when the priority application was filed for the '579 patent, the HS-SCCH was still in the process of definition by 3GPP, right?

A. As was testified, the UE ID size was changing from 10 to 16 bits. So there was an element of change there.

Q. And that was part of the definition of the HS-SCCH, right?

A. Yes.

Q. Okay. So that HS-SCCH was still in the process of being defined by 3GPP as of April 2002, right?

A. I think that was the, you know, the critical thing that was changing. A lot of the framework was there. There was some specifics like you just mentioned, you just discussed, the change from 10 to 16 bits was changing.

Q. Okay. And to be aware of that change from 10 to 16 bits, you would need to be at the working group meeting in Paris in April of 2002, right?

A. You, of course, wouldn't necessarily have to be there. I mean, if you were, as Dr. Dick testified yesterday, there were, you know, 100 people there from lots of telecommunications companies. And, you know, when I was at Bell Labs and Lucent, when you attended a meeting, you went back, you wrote meeting minutes, and you disseminated them.

So you could be aware of what's going on, not being there.

Q. Okay. You wouldn't have to physically be there, but you would have to either be there or learn about it from someone who was, right?

A. Well, yeah, people generally, best practice is you always write meeting minutes and you discuss them.

Q. Okay. Nate, if you could pull up CDX-512. And that's the change from 10 to 16 bits that's referred to in the background section that you testified about earlier today, right, in CDX-512?

A. Yes.

Q. Now, the only difference between the 32, 10 Reed-Muller encoding scheme that you refer to in CDX-512 and claim 1 is the use of a

half rate convolutional encoder in place of the 32, 10 Reed-Muller encoder, right?

JUDGE LUCKERN: Mr. Gupta?

MR. GUPTA: Your Honor, we object on the basis that I think this line of questioning, counsel is leading towards their rebuttal issues on invalidity. And these -- and the scope of the direct, this is outside the scope of the direct, which is limited to issues of claim construction and infringement. So that's why I object.

JUDGE LUCKERN: All right. Do you want a ruling? Do you want to argue it first? Do you want to rephrase and lay foundation? How do you want to proceed, Mr. Stephens?

MR. STEPHENS: I would like to respond.

JUDGE LUCKERN: Oh, yeah, certainly, you can have the opportunity.

MR. STEPHENS: Your Honor, this slide is about what the invention was. And Dr. Gitlin testified about the invention being this change from the 32, 10 Reed-Muller encoder to a half rate convolutional encoder. So I think that I am entitled to ask what the

difference between the claimed invention in claim 1 and the 32, 10 Reed-Muller encoder is. And that is my question.

JUDGE LUCKERN: All right. Do you have anything new you want to say, Mr. Gupta, before I hear the position of the staff?

MR. GUPTA: Your Honor, I think the testimony given was about just how the inventions came about, and it was not about trying to make any distinctions between prior art and any scope of the claims.

JUDGE LUCKERN: You mean the testimony on direct?

MR. GUPTA: That's correct, Your Honor.

MR. STEPHENS: Your Honor, I am asking about what the invention is. I am not asking him to compare various pieces of prior art with the claim. That's not what I am doing.

JUDGE LUCKERN: And when you say when you ask him what the invention is, you are talking about the claimed invention that is in issue with respect to the claims 1, 3, and 4, huh?

MR. STEPHENS: That's correct, Your

Honor.

JUDGE LUCKERN: All right. Mr. Levi, what's your position?

MR. LEVI: Your Honor, this is a close and difficult question. On the one hand, I think Mr. Stephens should be entitled to question the witness on a demonstrative that he used in his direct examination.

On the other hand, it appears from the wording of the question that Mr. Stephens is attempting to elicit information concerning differences between a prior art encoding scheme and claimed invention. So I am not sure -- it is a very, as I said, a close and difficult question. And --

MR. STEPHENS: Your Honor, if he did not testify --

JUDGE LUCKERN: Wait a minute. Let the staff finish. I mean, however you want to proceed, Mr. Levi. I am not making you take a position, so however -- just so I know you have ended. I am not trying to be funny or anything like that.

MR. LEVI: I understand, Your Honor. I paused because I was attempting to reach some

resolution in my mind.

JUDGE LUCKERN: Let me ask you this question. I have to go back and review the direct testimony. But as far as -- you are not testifying either, but you are here. As far as your position, CDX-512 was used in direct and there was some questions asked about CDX-512. Is that the position of the staff?

I would want to go back.

MR. LEVI: I don't have any specific recollection of it. However, I would be surprised if it was not used.

JUDGE LUCKERN: Well, let me ask Mr. Gupta. Again, I can go back to realtime, but at least Complainants will admit that we have testimony on CDX-512 in the record already, yes or no?

MR. GUPTA: That is correct, Your Honor.

JUDGE LUCKERN: All right. So go ahead, Mr. Levi.

MR. LEVI: Well, I guess I would come down on the side of allowing Mr. Stephens to proceed, considering that this demonstrative was used. However, it would seem fair to

require any questioning to be limited to information or the issues that are captured in this demonstrative, CDX-512, to avoid going beyond the scope of the direct examination.

JUDGE LUCKERN: All right. I am going to overrule the objection. I am only overruling it with respect to this particular question. We will see where we are going to go. And, of course, anything that I hear from this witness, Mr. Gupta is going to have redirect, so however he wants to get into redirect based on what he heard this witness say now only to this question, I have no problem.

I am not telling you, Mr. Stephens, that you can't pursue -- you are doing cross. And I am not telling a person how to do cross. So I don't know where you are going to go, but as far as this particular question, the objection is overruled.

Now, Mr. Gupta, I will read the question and we will see what you are going to say.

Now, you have there, you have CDX-512 before you. And the question was: "Now, the

only difference between the 32, 10 Reed-Muller encoding scheme that you referred to in CDX-512 and claim 1 is the use of a half rate convolutional encoder in place of the 32, 10 Reed-Muller encoder, right?"

Really it is yes or no or I don't know or however you want to answer. Go ahead.

THE WITNESS: Of course, there is the difference of the input changing from 10 to 16 bits, the UE ID, and the invention is, with that change --

JUDGE LUCKERN: And you are talking about what invention there?

THE WITNESS: The '579 invention.

JUDGE LUCKERN: Okay, go ahead.

THE WITNESS: And the 32, 10 Reed-Muller block code is replaced by a half rate convolutional encoder. That's the technical aspect of the invention. That's what the invention is about.

JUDGE LUCKERN: All right. Go ahead, next question, Mr. Stephens. Again, Mr. Gupta, I have no idea what he is going to ask, so we will see. Whatever you do, and I am not encouraging you to do anything either, go

ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. Nate, could we have RDX-3, please. I have just blown up claim 1 here. It says, L bits, right, not 16 bits?

A. In claim 1, it says, L bits, yes.

Q. So the only difference between what's described in your Exhibit 512 with respect -- the coding scheme that used the 32, 10 Reed-Muller encoder and claim 1 is substituting the half rate convolutional encoder for the 32, 10 Reed-Muller encoder, right?

A. Yes.

Q. Okay. Nate, if we could have RDX-4. So you would agree, then, that claim, as rewritten in RDX-4, then, covers the scheme that existed before the Paris working group 1 meeting in April of 2002, right?

MR. GUPTA: Objection, Your Honor, counsel is going down this line of questioning replacing now what has been taken from one particular encoder from one particular slide used during the direct examination, and is now proceeding to put that in the claim itself, and going down the path where he is clearly making

arguments that are related to validity issues and are not -- and are outside the scope of the direct examination that was limited to claim construction and infringement issues.

JUDGE LUCKERN: All right. How do you want to respond, Mr. Stephens?

MR. STEPHENS: Again, Your Honor, this is simply a question about CDX-512, and how the encoding scheme that he testified existed in the background of the patent, or as described in the background of the patent, differs from what is in claim 1.

I am not asking about general prior art questions. I am not going down the path of trying to ask him a lot of questions about invalidity. I am just trying to elicit testimony that explores what he testified about with respect to this Reed-Muller encoder on direct.

JUDGE LUCKERN: All right. Mr. Levi, what is your position on the objection?

MR. LEVI: Your Honor, the staff is of the view that the pending question strays a bit too far beyond the scope of direct examination.

While Mr. Stephens is correct that the

issue is the same when looked at at a relatively high level, the fact remains, I think -- well, in the staff's view, Mr. Stephens is straying beyond the demonstrative into an area that I think is, in the staff's view, at least, is better characterized or better viewed as an issue that is beyond the scope of direct, so the staff would support the objection.

JUDGE LUCKERN: Do you have anything new you want to say, Mr. Stephens, before I make a ruling?

MR. STEPHENS: No, Your Honor.

JUDGE LUCKERN: Sustained. Move on, Mr. Stephens.

MR. STEPHENS: Fair enough.

BY MR. STEPHENS:

Q. If we could have, Nate, CDX-514. Dr. Gitlin, you described this as the solution to the problem of the change from 10 to 16 bits, right?

A. Yes. This was the invention.

Q. Okay. And now --

JUDGE LUCKERN: Speak up, again. You are doing a great job. You can move that mic,

however you want to do it. The people in the back row, I am sure, are having a hard time hearing you.

THE WITNESS: Yes.

BY MR. STEPHENS:

Q. Now, the portion there on the left that refers to the 16-bit UE identifier is appended with 8 zero bits, do you see that?

A. Yes.

Q. Appending 8 zero bits is required when you use a half rate convolutional encoder, right?

A. It's what is recommended in the standard for use with convolutional encoders. It is not always required, but this is what the -- this particular convolutional encoder with a particular constraint length of 9 requires, according to the standard, use of appending 8 bits.

Q. And that was -- so the standard that includes the definition of the half rate convolutional encoder says that you should append 8 zero bits to the input, right?

A. In the -- yes, in the standard where this encoder, the half rate convolutional

encoder is described, it says how it should be used.

Q. Okay. And I think you already testified that if you take 24 bits, which is 8 plus 16, and you put that into a half rate convolutional encoder, it produces 48 bits, right?

A. Yes.

Q. That's just the way a half rate convolutional encoder works, right?

A. Correct.

Q. And the problem that was posed at the April working group 1 meeting that's addressed in the background of the patent was to create a 40-bit sequence, right?

A. Yes, to create a 40-bit sequence that would function as a scrambling sequence. I mean, it is not to create any 40-bit sequence. One of the requirements of the sequence is that it be 40 bits.

But there are other implied requirements that it perform well as a scrambling sequence.

Q. Okay. But if you have a 48-bit sequence that you have gotten from a half rate

convolutional encoder and you need to get a 40-bit sequence, you have to puncture the 48 bits to get 40 bits, right?

A. Yes.

Q. Scrambling and masking mean exactly the same thing in the context of the '579 patent, right?

A. In the -- certainly in the preferred embodiments, yes, in the preferred embodiments, the scrambling operation is a masking operation as shown in figure 3.

Q. I am not asking about the preferred embodiments. I am asking about the meaning of the words. Scrambling and masking have identical meanings in the context of the '579 patent, right?

A. If you look at the system, and there are various processing steps, and --

Q. Can you just answer the question yes or no? Then if you want to explain, you can.

A. In the general context of the patent, I don't believe they are the same, although in the preferred embodiment, they are the same.

Q. Nate, could you pull up --

JUDGE LUCKERN: What do you mean when

you say in the general context of the patent? What are you relying on when you say the general context of the patent?

THE WITNESS: Well, when you are using -- when you are generating a scrambling sequence and you use it, then you are looking at, well, what has been scrambled? So you certainly need, using the scrambling sequences as they are understood in the patent, you are doing a mixing or masking operation.

And what I meant is that to generate the signal that's being masked with the scrambling sequence, you start with some other signal, part 1 bits, and you go through several processing stages.

So the actual masking operation is a scrambling operation, but there is a whole process that leads up to generation of the signal that's being masked by the scrambling sequence.

So in the preferred embodiment, it is very clear, when I read the text of the patent, I don't interpret the phrase scrambling as being restrictive, although there is a specific masking step done when you take a scrambling

sequence and apply it to the encoded part 1 information. That's masking.

And you can say that, you know, that's where scrambling occurs, but you could also think of scrambling being a larger process, which starts with the original information, then you get the 8-bit -- the 8 part 1 bits and gets to the 40-bit sequence.

So I guess there is some ambiguity in there, but the preferred embodiment, it is very clear that they are 1 to 1.

JUDGE LUCKERN: Go ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. Nate, could you pull up Dr. Gitlin's March 4th deposition, page 12, lines 19 through page 13, line 7.

A. Can you tell me which exhibit that is?

Q. Yeah. You should have it in the binder there. It is your March 4th deposition.

JUDGE LUCKERN: Let me know, Doctor, when you get it. As I said, if you want to read it before you hear the question.

BY MR. STEPHENS:

Q. Page 12, line 19.

JUDGE LUCKERN: Through page 13, line 7.

BY MR. STEPHENS:

Q. I will just read the question and answer.

JUDGE LUCKERN: Let him read it first himself, Mr. Stephens.

MR. STEPHENS: Okay.

BY MR. STEPHENS:

Q. Do you see that?

A. I started reading on page 11 to get the context of the discussion.

Q. Let me just read the question and answer.

"Question: Oh, when you -- the operation that you refer to as scrambling, is that also referred to as masking in, in the context of the '579 patent?

"Answer: I believe it's referred to as masking."

That's your testimony, right?

A. Yes, but if I -- I started reading on page 11, and the discussion was in the context of the preferred embodiment where I said on page 11, quite clearly, in the context of the

patent, it is the --

JUDGE LUCKERN: Now, are you reading right now from page 11?

THE WITNESS: Yes, I am. I started --

JUDGE LUCKERN: Read, read -- where do you start reading, quite clearly, that's in the deposition? What line is that?

THE WITNESS: Line 10, Your Honor.

JUDGE LUCKERN: Pardon me?

THE WITNESS: Line 10.

JUDGE LUCKERN: So start reading line 10, so the reporter can make sure the transcript indicates it is from the deposition. So quite clearly, go ahead, continue reading.

THE WITNESS: It says on line 10. My answer: "In the context of the patent, it is the Mod 2 addition or the exclusive or of the two sequences." And then it goes on to discuss this.

So the context of the context of the patent, I was referring to the preferred embodiment. And I think the questioning keeps going and when I was answering these questions, I had in my mind the preferred embodiment context.

JUDGE LUCKERN: Okay. Go ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. Okay. But you are not denying that you were asked that question and had given that answer? Again, the question was:

"Question: Oh, when you -- the operation that you refer to as scrambling, is that also referred to as masking in, in the context of the '579 patent?

"Answer: I believe its referred to as masking." That is your testimony, right?

MR. GUPTA: Objection, Your Honor. Dr. Gitlin has read portions leading up to this question to put this in context, so I would say the entire transcript beginning from the portion Dr. Gitlin was referring to, to put this in context, starting at page 11, line 10, to the beginning of where Mr. Stephens is reading, which is from, on page 12, line 19, be read for completeness into the record, because Dr. Gitlin has read portions of that into the record to put his answer in context.

JUDGE LUCKERN: Mr. Stephens, can you do that? Do you have any problem if Mr. Gupta

does it right now? Do you want to leave it for redirect?

MR. STEPHENS: I think we should leave it for redirect, Your Honor.

JUDGE LUCKERN: Make sure on redirect that you indicate what you want in. I mean, why you want it in, Mr. Gupta. You certainly have the opportunity on redirect to have you read whatever else you want in, Mr. Gupta, in relation to, in relation to -- in other words, it is page 12, line 19 through page 13, line 7.

So just make sure you jot that down, Mr. Gupta, when you go redirect, you make reference to those pages and say why you are reading in additional pages. Okay? Go ahead, Mr. Stephens. If you don't do it, I am not going to remind you, Mr. Gupta. Go ahead, Mr. Stephens. If you don't do it, it is not done. Go ahead, Mr. Stephens.

BY MR. STEPHENS:

Q. Nate, could you pull up Dr. Gitlin's rebuttal report from February 21st, 2008? Dr. Gitlin, do you have that?

A. I am opening to it now.

Q. And, specifically, page 10, Nate, if

we could pull that up. Dr. Gitlin, at page 10, it has a section on the '579 entitled the '579 patent relates to generating a scrambling sequence for the HS-SCCH. Do you see that?

A. Yes.

Q. And there is a paragraph 31 and paragraph 32 there. Do you see that?

A. Yes, I would like to read it.

Q. Please do. Let me know when you have finished.

A. I have read 31 and 32.

Q. And those two paragraphs contrast encoding and scrambling, right?

A. Yes.

Q. Now I would like to read paragraph 31 into the record. It says, "Encoding is generally referred to as the process of modifying a sequence of bits according to some predetermined algorithm known to both a transmitter and a receiver. A transmitter generally uses one or more encoding operations to improve the transmission quality, modify the shape of transmitted signals, eliminate redundant information, et cetera.

"Some encoding operations could change

the length of an input bit sequence. For example, convolutional encoding that is used in WCDMA systems produces an output bit sequence that is longer than the input bit sequence."

And I am going to skip the citation there. "Channel encoding refers to the process of encoding one or more bits of information (payload) transmitted over a communication channel, such as the HS-SCCH."

Do you see that? Have I read it accurately?

A. Yes, yes, you did.

Q. And do you stand by those words today?

A. Yes.

Q. And I would like to read paragraph 32 into the record. "Scrambling, on the other hand, is a process of changing the values of bits in an information signal in a predetermined fashion by mixing the signal with a scrambling sequence known to both a transmitter and a receiver. In the context of the '579 patent, the mixing is done using exclusive or, or Modulo 2 addition."

I will skip the citation. "The receiver must use the identical scrambling

sequence that was used at the transmitter to send the signal in order to recover the bits in the original information signal. The process of recovering the bits of the original information signal at the receiver is referred to as descrambling. Therefore, unlike the channel encoding, the scrambling process does not modify the length of the input bit sequence being scrambled. Rather, the scrambling process merely changes the values of the individual bits in the input sequence using a predetermined scrambling sequence."

Have I read that accurately?

A. Yes, you read it accurately. But if you look at the fourth line, I was again using the context --

Q. I was just asking if I read it accurately.

A. Am I allowed to say yes and give some explanation?

Q. You will have the opportunity to explain it on redirect, if you would like. Do you stand by those words today?

A. I would like to say that, you know --

Q. First of all, have I read it

accurately? That was the question.

A. You read it accurately.

Q. And do you stand by those words today?

A. Yes, I do, but the context there I was talking about the context of the patent, and clearly, it was clear to me what I was talking about is the exclusive or Modulo-2 operations that are described in the preferred embodiment.

Q. Now, when you say the process of recovering the bits in the original information signal at the receiver is referred to as descrambling, the words original information signal there refer back to the first sentence of this paragraph, right?

A. There is some explanation I would like to give you.

Q. Could you just answer yes or no? And then --

JUDGE LUCKERN: Well, no. There was this question: Now, when you say the process of recovering the bits in the original information signal at the receiver is referred to as descrambling, the words original information signal there refer back to the first sentence of this paragraph, right?

Can you answer yes or no or I don't know? And then you can explain whatever, however you answer. Do you understand what I am saying from the bench?

THE WITNESS: Yes.

JUDGE LUCKERN: Okay. So how do you answer that question?

THE WITNESS: Yes, the first sentence clearly says those words, but it is the process of changing the value of bits in a predetermined fashion. So if we look at what happens in the control channel, you start out with a part 1 information bits. You go through its own form of encoding, and then you do a mixing operation with a scrambling sequence.

And that mixing operation does not change the size of that word. So at that point, you are mixing the 40-bit scrambling sequence with the 40-bit sequence that came out of the channel encoder.

So when I said it doesn't change the size of the word, that's what I meant. And now I am going to get to the answer. So now what I am starting with is the part 1 bits.

And I think someone of ordinary skill

in the art would say: Look at what happened. I started with those part 1 bits, and now I have generated this control channel signal. Are those part 1 bits scrambled? Well, Your Honor --

MR. STEPHENS: Your Honor, this is an awful lot of information.

JUDGE LUCKERN: Let him finish. I am up here for a purpose. I don't want you to interrupt the witness. Do you hear me, Mr. Stephens?

MR. STEPHENS: I understand.

JUDGE LUCKERN: You are doing a great job. I want this witness to finish an answer.

MR. STEPHENS: I will not interrupt.

JUDGE LUCKERN: And I don't want to hear it again. Do you hear me, Mr. Stephens?

MR. STEPHENS: You will not hear it again.

JUDGE LUCKERN: Let me say where you are. You can explore whatever he is saying, do whatever you want, this is cross, so I invite you to do it. I am going to ask you a bit about timing. You said an hour and you have been over an hour, as to how far you are going

to go. However you want to do it, fine. But let me indicate where you were before you were interrupted in the middle of what you were trying to say, I believe.

Well, I am not going to read the whole thing, Doctor. I think someone of ordinary skill in the art would say, look at what happened. I started with those part 1 bits and now I have generated this control channel signal. Are those part 1 bits scrambled? Well, Your Honor --

THE WITNESS: So if I look at the encoded signal, 40 bits, it is then scrambled with the 40-bit scrambling sequence which we were talking about. And that's the control channel signal that the part 1 signal that's ready to go out on the line.

So what I started to say was if you asked someone of ordinary skill, was the original 8 bits which we started with, were they scrambled, I think someone of ordinary skill in the art would say that they have been scrambled. Because in order to get them back, you will have to perform descrambling.

So I think it is a long answer, but

let me try and put it in context again. You start with the 8 part 1 bits. You go through the channel encoding and the rate matching. You end up with a 40-bit sequence of encoded bits to which you apply the scrambling sequence.

Now I look at that output. That is the encoded scrambled part 1 signal.

And what I was saying, if you ask someone of ordinary skill in the art, were those 8 part 1 bits scrambled? I don't think they would hesitate. They would say, of course. If you ask them why? Well, in order to recover them, I have to descramble using the scrambling sequence at the receiver, or if I choose to do it, you know, just locally, but in order to get those 8 part 1 bits back, I have to apply the scrambling sequence.

So I would say that, trying to summarize, the 8 part 1 original bits have been scrambled, but the actual mixing operation when I added the scrambling sequence to the 40 encoded bits doesn't change the size of the word. The scrambled encoded part of bits still are 40 bits.

JUDGE LUCKERN: Did you finish?

THE WITNESS: I am finished.

JUDGE LUCKERN: You can ask your next question, you can explore, however you want to, Mr. Stephens.

MR. STEPHENS: Thank you, Your Honor.

BY MR. STEPHENS:

Q. My question was simple and I don't think I got a clear answer to it. When, in paragraph 32, you say the process of recovering the bits of the original information signal at the receiver is referred to as descrambling, the words original information signal refer back to the phrase information signal in the first sentence of paragraph 32, correct?

A. The --

Q. Can you just answer the question, please?

JUDGE LUCKERN: I will be glad to repeat the question if you want me to, Doctor.

THE WITNESS: I think I made it clear in my discussion, it is my opinion, and I certainly meant it here, the original information signal is the part 1 bits, because that's what the receiver needs.

BY MR. STEPHENS:

Q. Now, the phrase information signal appears nowhere in paragraph 31, correct?

JUDGE LUCKERN: You said paragraph 31, Mr. Stephens, correct?

MR. STEPHENS: That's right.

JUDGE LUCKERN: Your earlier question had to do with paragraph 32.

MR. STEPHENS: Yeah.

JUDGE LUCKERN: Okay, all right.

THE WITNESS: The phrase -- can you repeat the question, please?

JUDGE LUCKERN: Now, the phrase information signal appears nowhere in paragraph 31, correct?

THE WITNESS: That's correct. The words information signal do not appear, but the word information (payload) appears.

BY MR. STEPHENS:

Q. But the only place that the phrase information signal appears before the sentence "the process of recovering the bits of the original information signal at the receiver is referred to as descrambling," the only place where information signal appears before that is

the first sentence of paragraph 32, right?

A. Those two words together, yes, I would agree.

Q. Okay.

JUDGE LUCKERN: Mr. Stephens, you are doing a great job. I just want to make sure. Is this record clear what paragraph 31 reads or what paragraph 32 reads? Maybe it doesn't have to show it, but I am not going to try to find these expert reports or whatever they are. This is a portion of an expert report, isn't it?

MR. STEPHENS: Yes, it is, Your Honor.

JUDGE LUCKERN: The expert reports are not in evidence. So I want to make sure the record is clear. If you are satisfied with it, fine. Let's move on.

MR. STEPHENS: I am, Your Honor. I read both of them into the record.

JUDGE LUCKERN: All right, move on, move on.

BY MR. STEPHENS:

Q. Dr. Gitlin, paragraph 33 begins, "in my initial expert report of February 1st, 2008, I described the process of generating a

scrambling sequence for part 1 of the HS-SCCH and the separate process of encoding part 1 of the HS-SCCH channel information." Have I read that right?

A. Yes.

Q. And then it goes on to say, "to clarify these different processes, figure 1 below is essentially the same as figure 2 in my initial expert report." Have I read that correctly?

A. Yes.

Q. And figure 1 appears on the next page, right, page 12? Nate, if you could pull that up.

JUDGE LUCKERN: So the question is, figure 1 appears on the next page, page 12? Yes or no or you don't know. Doctor?

THE WITNESS: Yes, that's figure 1. It looks like some -- it is a bit faint, but I have the paper copy in front of me, so I will use that.

BY MR. STEPHENS:

Q. Okay. And that figure 1 shows a part 1 channel coding path at the top, right?

A. Yes.

Q. And it shows a part 1 scrambling sequence generation path on the left, right?

A. Yes.

Q. And those are separate paths, correct?

A. Yes.

Q. And the UE specific scrambling appears just below the part 1 channel coding path, correct?

A. It says UE-specific masking.

Q. Okay. And that's scrambling in this figure, right?

A. That's where the mixing is done, as I tried to make clear that there is a whole process of starting with the part 1 bits. So that if you look at what's being scrambled, it is what I said in the long answer before, it is the original part 1 information that's being scrambled.

And the operation where you are -- the UE specific masking which you have highlighted is the mixing operation, which does the scrambling, but all of the information in the part 1, the original information in the part 1 channel coding path has been scrambled.

Q. Now, the UE-specific masking there

doesn't change the length of the input, right?

A. The length of the -- of each of the inputs to the XOR.

Q. They stay the same through the masking process, right?

A. Yes.

Q. So when you said in paragraph 32, "therefore, unlike channel coding, the scrambling process does not modify the length of the input bit sequence being scrambled," that's what you were referring to, right?

A. I was referring to the mixing operation. The mixing operation doesn't change, it has two inputs and an output and they all have the same bit length.

Q. Well, you were referring to the scrambling process, right? Those are the words you used? Right?

A. As I --

Q. You used those words, right?

A. Yes.

Q. Okay. And figure 1 on page 12 of your February 21st expert report, that's not the preferred embodiment of the '579 patent, right?

A. No. That's the more detailed

processing of the part 1 of the high speed shared control channel information.

Q. So this is a figure that you used to schematically describe the process of generating a scrambling sequence for part 1 of the HS-SCCH, and the separate process of encoding part 1 of the HS-SCCH channel information, right?

A. Yes.

JUDGE LUCKERN: We have a double negative here. I want to make sure.

"Question: And figure 1 on page 12 of your February 21 expert report, that's not the preferred embodiment of the '579 patent, right?

"Answer: No."

So is figure 1 on page 12 of your February 21st expert report, is that the preferred embodiment? And your answer is going to be no, correct?

THE WITNESS: Well, it is what is done in the standard. It is more detail than you would find in the standard, but that's the -- so it is the standard. It is not the preferred embodiment.

JUDGE LUCKERN: Okay. Mr. Stephens, I

made reference to it earlier, you are doing a great job, you started your cross around 10:45, you have been going for about an hour and 15 minutes. Sometime earlier I think you said one hour, or maybe you said at least one hour, I am not sure what you said. How much more do you think you are going to have?

MR. STEPHENS: I did say at least one hour, Your Honor. And I probably have, at the rate this is going, close to another hour, but I will try to keep it to less than that.

JUDGE LUCKERN: Mr. Levi, do you have anything right now?

MR. LEVI: Same answer as before, Your Honor. If I do have anything, I suspect it won't be more than just a few minutes.

JUDGE LUCKERN: Mr. Gupta, what do you have right now based on redirect?

MR. GUPTA: Based on what I have heard, about five minutes.

JUDGE LUCKERN: Five minutes. Well, I don't care what you want to do. The next witness, of course, is William Merritt. He is a nonexpert witness. We have to break for lunch. I don't care. I don't know if we want

to go an hour and 15 minutes without any lunch. I have an open mind, Mr. Stephens. How do you want to proceed?

MR. STEPHENS: Your Honor, I am fine either way. If you would like to break now, that's perfectly okay.

JUDGE LUCKERN: Well, the reporter has been going. Anybody else have any comment on breaking now or going on?

MR. POWERS: I support breaking now, Your Honor.

JUDGE LUCKERN: Mr. Gupta?

MR. GUPTA: That would be fine, Your Honor.

JUDGE LUCKERN: Mr. Levi?

MR. LEVI: I would ask the witness what his preference is.

JUDGE LUCKERN: How are you doing? That's good. The witness comes first. I am very glad. Well, the witness is probably the most important person in this room and the second most important person in this room is Karen, the reporter. What do you want to do? Do you want to break now?

THE WITNESS: Either way. Whatever

your pleasure is.

JUDGE LUCKERN: It is back to my floor. So what do you want to do, Mr. Levi?

MR. LEVI: Karen, what do you want?

JUDGE LUCKERN: No, no, she is transcribing. You don't have any preference?

MR. LEVI: I will follow Mr. Powers' suggestion and the suggestion to break for lunch.

JUDGE LUCKERN: We have Mr. Powers say I support breaking now. Mr. Gupta, that would be fine. So we have the private parties saying they want to break for lunch. At least the attorneys for private parties. We will break for lunch and come back here at ten minutes of 1. Everybody have a good lunch.

(Whereupon, at 12:03 p.m., a lunch recess was taken.)

AFTERNOON SESSION

(12:51 p.m.)

JUDGE LUCKERN: Go ahead with your cross-examination. It is on the public record.

BY MR. STEPHENS:

Q. Okay. I would like to clean up just a couple of things before we proceed.

JUDGE LUCKERN: No problem.

BY MR. STEPHENS:

Q. Nate, if you could pull up Dr. Gitlin's March deposition, again, page 13, lines -- I'm sorry, page 12, line 19, through page 13, line 7. I want to make sure I got a clean record on this, because I think I neglected to --

JUDGE LUCKERN: I want you to. If you don't, I pay no attention to it.

BY MR. STEPHENS:

Q. Dr. Gitlin, I want to make sure this is all in the record. I am going to read to you the question and answer, just ask you to tell me whether those are your words.

"Question: Oh, when you -- the operation that you refer to as scrambling, is that also referred to as masking in the context

of the '579 patent?

"Answer: I believe it's referred to as masking.

"Question: Do you have any understanding in that context, masking refers to anything different from the way you describe scrambling?

"Answer: In the context of the '579 patent?

"Question: Yes.

"Answer: I would say they're identical." That's your testimony, right?

MR. GUPTA: Objection, Your Honor.

JUDGE LUCKERN: Well, overruled. He can say yes or no to that. In other words, are we denying what's before me?

MR. GUPTA: No. This is exactly the same line of questioning that was done an hour ago, two hours ago, and Dr. Gitlin had read previous portions from this transcript in order to explain his answer. So he said he would have to go through that exercise again in order to read in the portions from the transcript that appear from page 11, line 10 all the way through page 12, line 18.

JUDGE LUCKERN: I don't know what is in realtime before we broke for lunch. As I understand it, he was just making sure that what was -- what he addressed earlier was clear. That's all, as I took him to do it. That doesn't mean we have to go all over again that. I have a problem with -- in other words, you want to start all over again, disregard what's already in the record or you want me to have Mr. Stephens go through realtime to indicate that it was not clear or something? I am just not sure.

MR. GUPTA: No, Your Honor. I just wanted to renew my objection that was stated previously when this question was asked for the first time.

JUDGE LUCKERN: Well, again, whatever got in before, got in. And you have the opportunity of redirect. So I am not sure if I have to make a ruling or not. I don't know what I am supposed to do right now. Renew your objection. I really don't know what I am supposed to do, Mr. Gupta. Shall we take the time now and go back and this will be your time, all right, take the time, let's go back

and find out what we have done. We will spend the next half hour doing it. It is your time.

MR. GUPTA: Your Honor, it is okay. We can address this in redirect.

JUDGE LUCKERN: All right. Well, now, where do we stand. Let me just see where we stand. Dr. Gitlin, I want to make sure this is all in the record. I am going to read to you the question and answer. So he read the question. And I guess you read into the record all you want to read in from this deposition transcript, correct, Mr. Stephens?

MR. STEPHENS: That's correct, Your Honor.

JUDGE LUCKERN: Does that say that?

THE WITNESS: Yes, it does.

JUDGE LUCKERN: All right. Whatever you said earlier applies. It is not stricken or anything like that. So let's move on.

MR. STEPHENS: Okay.

BY MR. STEPHENS:

Q. So that's your testimony, Dr. Gitlin?

JUDGE LUCKERN: Well, it was testimony in his deposition. I mean, whatever he said this morning, however he said is in the record.

Do you follow me?

MR. STEPHENS: I do. I would like him to confirm that, and then I will move on.

JUDGE LUCKERN: That was at least -- those lines are in your deposition, correct?

THE WITNESS: Yes.

JUDGE LUCKERN: Now, what's in before or after or what you are going to hear on redirect, whatever it is, we will wait to see what happens on redirect. Move on.

MR. STEPHENS: Okay, thank you.

BY MR. STEPHENS:

Q. Nate, if you could pull up again figure 1 on page 12 from Dr. Gitlin's February 21st expert report. Dr. Gitlin, do you have that before you?

A. Page 12, yes.

Q. And I would like to state for the record I intend to mark this as RDX-16, so --

JUDGE LUCKERN: Thank you. It is identified as RDX-16.

BY MR. STEPHENS:

Q. Dr. Gitlin, I would like to ask now a few more detailed questions here. Part 1, channel coding path has a portion there just

below the box labeled MUX and above the box labeled append 8 tail zero bits. Do you see that?

A. Yes.

Q. And it says X 1 equals (X 1, X 2 through X 8), do you see that?

A. Yes.

Q. Could you explain what that is?

A. That's at the input to the multiplexer are the 8 part 1 bits. And now they are just multi-plex -- the output of the multiplexer are the very same bits organized in a word, which I have called X 1 through X 2 through X 8. So it is just -- we have an array of 8 input bits and they are put together in an 8-bit word. That's what the multi-plexing is doing.

Q. So are these the 8 part 1 bits that you have referred to on your direct testimony?

A. Yes.

Q. Okay. Now, below that we have some boxes, append 8 tail zero bits and a convolutional encoder. Do you see that?

A. Yes.

Q. And then puncture 8 bits. Do you see that?

A. Yes.

Q. And that process changes the length of those bits, right?

A. I mean, starting from the 8 bits, yes, it changes the length.

Q. And after puncturing, you end up with 40 bits, right?

A. Yes.

Q. Now, that information has not yet been scrambled, right?

A. Correct.

Q. And so can we refer to the 40 bits that are labeled there as R1, either as R1 or encoded, but not scrambled 40-bit part 1 information?

A. Either way is fine.

Q. Okay, thank you.

And then those 40 bits are passed downward to the next box, UE-specific masking, and then there, they are mixed by XOR with the scrambling sequence to create the 40 bits that we see labeled S1 below, right?

A. That's correct.

Q. And now those bits are scrambled, right?

A. Yes.

Q. And the length didn't change in that scrambling process, right?

A. That's correct.

Q. Now, if we can go back to the patent, CX-3, figures 3 and 4. Nate, if you could pull that up, please.

JUDGE LUCKERN: For the record, that's CX-3, of course.

BY MR. STEPHENS:

Q. Dr. Gitlin, figure 3 corresponds to the UE-specific masking in RDX-16, figure 1 from your expert report, right?

A. I'm not sure what you mean by corresponds. It is -- in the preferred embodiment, it is the scrambling sequence.

Q. And it does the same thing, right? In other words, figure 3 does the same thing that the UE-specific masking does in RDX-16, right?

A. I just want to -- can you ask your question again, please?

JUDGE LUCKERN: The question is, the previous question, Dr. Gitlin, figure 3 corresponds to the UE-specific masking in RDX-16, figure 1 from your expert report,

right? Then you said, I am not sure what you mean by corresponds. It is in the preferred embodiment. It is a scrambling sequence.

This is the question: And it does the same thing, right? In other words, figure 3 does the same thing that the UE-specific masking does in RDX-16, right?

THE WITNESS: So my answer is that the scrambling sequence in figure 1 on page 12 of the expert report you are referring to is doing an XOR operation with the channel coding, path signal, let's say as the words were used before with R1, with the scrambling sequence.

And if I say that, okay, figure 3 is doing an XOR operation with the scrambling sequence as taught by the patent, with the encoded data, one could make the correspondence that way, but the patent doesn't talk in any detail as to how you generate the channel coding. It just says encoded data.

So I'm not sure it is a complete correspondence. It is certainly a mixing operation or a masking operation, as I referred to it on figure 1, and figure 3 is a masking operation.

BY MR. STEPHENS:

Q. Okay. So the masking operation in figure 3 represented by the circle with the cross in it, that's an XOR operation, right?

A. Yes.

Q. And that's just like the XOR operation that happens in the UE-specific masking in RDX-16, right?

A. There is an XOR operation in both, and they do the masking operation with the scrambling sequence input. And if I say R1 is the encoded high speed shared control channel, yes, but the patent doesn't give any details as to how you generate the encoded data.

Q. Okay. But the standard does, right?

A. Yes, that's what I have shown on figure 1.

Q. Okay. And the encoded high speed shared control channel or encoded HS-SCCH data referred to in figure 3 would refer to the same kind of encoded data that we see in the R1 sequence in RDX-16, right?

A. It could. It is the preferred embodiment. It is really -- I mean, this patent is about generation of a scrambling

sequence in accordance with the invention using half rate convolutional code. That's what the patent is about. It is not specific with a specific channel encoding.

Q. Well, the standard, though, at the time that specified what HS-SCCH was, said that -- how you encode the HS-SCCH data, right?

A. Yes.

Q. And that was the same way that you see in RDX-16, right?

A. I would have to look at -- there was a change in the processing change from a rate one-half convolutional encoder to the rate one-third. I am not precisely sure which standard you are referring to and which encoding in the channel coding path was in there at the time that you are asking the question.

Q. Okay. That's a fair point, but at both times, it specified an encoding process and one of those encoding processes was the same as we see in RDX-16, right?

A. RDX-16 being my report and the --

Q. Figure 1.

A. Figure 1 for the 2/21 report?

Q. Yes.

A. Yes.

Q. Okay. Now, in figure 3, because it is an XOR operation, and it is using 40 bits, we know that the input is 40 bits, right?

A. Yes.

Q. And we know that the XOR operation doesn't change the length, so we know that the scrambled data is 40 bits, right?

A. Yes.

Q. And then looking down to figure 4 of CX-3, the '579 patent, we see the received HS-SCCH data. That's the same data that was labeled scrambled data up above in figure 3, right?

A. Well, it would be the same if the channel hadn't made any errors. So under the assumption that -- under two assumptions, that the channel made no errors and -- let me make this -- just under the assumption the channel made no errors, you would receive what you transmitted.

Q. Okay. And again, we know it is 40 bits because it is -- the operation in figure 4 is also an XOR and it is XOR with 40 UE ID

scrambling sequence bits, right?

A. Yes.

Q. And we also know as a result that the descrambled encoded HS-SCCH data in figure 4 is 40 bits, right?

A. Yes.

Q. So in figures 3 and 4, we see that the encoded HS-SCCH data is 40 bits, then it gets scrambled, using an XOR operation, and then transmitted. And if there is no errors, it is received as HS-SCCH data, and then it is descrambled and you get the same encoded 40 bits back, right?

A. Again, under the assumption that -- and I think it is the intention of the patent that this is the intended receiver and using the same scrambling sequence at the receiver in figure 4 that you have used in figure 3.

Q. Okay. So what happens in figure 4 inverts what happens in figure 3, right?

A. Figure 4 is a preferred embodiment. It is looking at simply masking the signal with, in figure 3, with a scrambling sequence. And figure 4 is just -- it is only one element of a receiver and it performs the demasking

operation.

And what it takes advantage of is the properties of the XOR, when to a signal you add the same input; that is, in figure 3, the scrambling sequence, the UE ID, and replicate that in figure 4, that you undo the operation.

So, yes, I would say it undoes the operation. And as I tried to make clear in the various receiver architectures, the general receiver is much more complicated than what's shown in figure 4.

Q. Okay. But in figures 3 and 4, figure 4 inverts what happens in figure 3 and you get back what you started with, right?

A. I would prefer to say it undoes, but you replicate the data. The encoded data that you transmit is descrambled at figure 4.

Q. And you get back what was scrambled?

A. You get back the input to figure 3.

Q. Okay. And that's what was scrambled in figure 3, right?

A. Yes.

Q. Now, there is no disclosure anywhere in the '579 patent of descrambling, changing the length of the data, right?

A. The patent is 3?

Q. CX-3, I'm sorry.

A. I would disagree. On line 39, it says --

Q. Which column?

A. Column 1. The UE descrambles the data carried on part 1 of its control channel using its scrambling sequence. So it is clear that the UE will use the scrambling sequence to recover the part 1 data, part 1 information.

Q. Okay. Now, the 40 bits that we saw R1 in RDX-16, that is carried on part 1 of the HS-SCCH, right?

A. That is the part 1 encoded rate-matched -- you are referring to the input, the encoded data in figure 3.

Q. You mean the input to the UE-specific masking? I am referring to R1 in RDX-16.

A. I have to go back to that.

Q. Sorry. I think it would be worthwhile if you keep that figure handy.

A. Can I take it out of the binder?

Q. Sure. If you can pull that up again, it is RDX-16, page 12 of Dr. Gitlin's report. Perhaps, Nate, you can put that up along with

figures 3 and 4?

JUDGE LUCKERN: Mr. Stephens, I want to make sure the record is clear when I read it, when there are no attorneys around me. You said, you mean the -- well, okay, now the 40 bits that we saw R1 in RDX-16. That is carried on part 1 of the HS-SCCH, right?

That is part 1 encoded rate-matched, you are referring to the input, the encoded data in figure 3.

"Question: You mean the input to the UE-specific masking? That was the question. I am referring to R1 in RDX-16. And then:

"Answer: I have to go back to that."

Sorry, I think it would be worthwhile to keep that figure --

MR. STEPHENS: You are right, Your Honor, let me clean it up.

JUDGE LUCKERN: I hope so.

BY MR. STEPHENS:

Q. You are right. We were talking about two different exhibits and I didn't realize it.

JUDGE LUCKERN: Please. If it's muddled, I will just pay no attention to it.

MR. STEPHENS: I understand.

BY MR. STEPHENS:

Q. Dr. Gitlin, referring now to RDX-16, figure 1 in your February 21st expert report, the bits labeled R1, the 40 unencoded -- or, excuse me, the 40 encoded, but not scrambled part 1 information, those bits are carried on part 1 of the HS-SCCH, right?

A. Certainly they are encoded, as we used the word before, encoded, rate-matched. Rate-matched, part 1 signal, I would say.

Q. Okay. And then they are scrambled as we talked about, and that scrambled 40-bit sequence is actually sent over the physical channel as we see at the bottom of figure 1, right?

A. Correct.

Q. And so when the patent refers in column 1 to data carried on part 1 of its HS-SCCH, that's consistent with the scrambled 40 bits that are actually transmitted over the physical HS-SCCH channel, right?

A. I'd like to just take a minute or so to look at the patent. No, I don't agree with you. Let me tell you the reason for my disagreement.

If I look at, starting with the line 20, which is the third paragraph, it is a short description, but I will read it and make my points if that's okay. To support HSDPA, the high speed control channels are used. The control channels are used to signal vital control information to the UEs. It has two parts, referred to as part 1 and part 2.

Part 1 carries time critical information. In my mind, that's the data that's important to the receiver. It goes on to, on line 31, to obtain its part 1 information. So it is talking about the 8 bits, the part 1 information. That is what is of interest in here.

The patent spec doesn't talk about any specific channel encoding. It says to obtain its part 1 information, it goes on, each HSDPA monitors up to four control channels. And it goes on, reading from line 39, the UE descrambles the data carried on part 1 using its scrambling sequence. So the data carried on part 1, if you follow my chain, we started out with part 1 carries time-critical information, and the only time information or

data is referred to is this part 1 critical information.

And the only information that's of interest to the receiver, to the receiver, so it can properly process the data payload, is those part 1 bits, which happen to be in my figure 1, the part 1 information.

So what's of interest here is the part 1 information. The R1 in figure 1 of my report is just what we called it. It is intermediary set of bits in the processing stage.

Q. Okay. Now, if you would look at column 2 of CX-3, Nate, if you could bring this up, line 61 to 65, that's in the '579 patent. And it says that figure 4 is a simplified diagram of user equipment descrambling HS-SCCH using the UE ID-specific scrambling code, right?

A. I'm sorry.

Q. Column 2, line 61 is where it starts, through 65.

A. Yes.

Q. Now, when you do the descrambling that's described there, you don't get back the 8 part 1 bits, right?

A. Where figure 4 is relative to figure 3, that's a very simple mixing operation, my -- I would say relative to figure 4 -- is it possible to put figure 4 up?

Q. Yes.

A. If you would pull figure 4 up.

Q. Nate, if you could pull up figure 4.

A. So relative to figure 4 in the patent, which is just the preferred embodiment, the teaching is you use the same scrambling sequence to do a scrambling and descrambling.

And then when you get this descrambled, encoded data, let's say you acquire the field R, set of bits R for my figure 2, you are not done. Someone of ordinary skill in the art would say, oh, okay, now I have to, as I talked about in my exemplary architectures, I only have the encoded data, I have to decode it and derate-match it.

And someone of skill in the art would have known what the encoding technique was done in the channel coding path of the figure 1 of my report, and would then implement the decoding path. And someone of ordinary skill

in the art would be expected to be familiar with this and know what to do. So I think that that's, you know, what someone of ordinary skill would do.

Q. Okay. So when you have the descrambled, encoded data that we see in figure 4, you don't yet have the 8 part 1 bits you referred to earlier, right?

A. You don't have the part 1 information.

Q. Okay. And that's the 8 bit information you referred to earlier, right?

A. Yes.

Q. Now, you mentioned that one of ordinary skill would understand that you would have to decode that, right?

A. Yeah. My assumption is a person, the person we are referring to had built the encoder so they would know that they would have to build a decoder, that's compatible with the encoding.

Q. And you also mentioned that there is no specific encoding mechanism described in the patent, there is similarly no specific decoding mechanism described in the patent, right?

A. The encoding -- that's correct, but,

you know, the encoding and decoding operations are, you know, this is pretty standard stuff. People who are of ordinary skill, as I described in my testimony, would know how to do this.

Q. Now, if we could go, Nate, to CDX-535. Dr. Gitlin, this is one of the slides you testified about on direct, right?

A. Yes, it is.

Q. And the UE-specific masking we see near the bottom on the left side, that performs the same operation that we saw referred to as UE-specific masking in figure 1 of your expert report as well, right?

A. Yes.

Q. Okay. So that UE-specific masking in CDX-535 takes the not scrambled, encoded rate-matched part 1 bits and scrambles them, right?

A. Yes.

Q. Okay. And then they are transmitted over the air, along the bottom; is that right?

A. Yes.

Q. And then they are received at a handset on the right side. Is that right?

A. Yes.

Q. And then you have a demasking operation. And that demasking operation recovers the 40 encoded bits that were scrambled on the base station, right?

A. Yes. If I may add, this was my first exemplary architecture. And I think I was asked the question in terms of guidance as to how you would build a receiver, since the standard doesn't give you any, and I said it is my opinion that someone of ordinary skill in the art would know that for every operation you did at the transmitter, for example, channel coding, rate-matching, and masking, you would need to undo these operations in the receiver.

So this is an exemplary architecture, and it says, okay, for illustration, one exemplary architecture is you undo these operations in reverse order, so the last thing you did was mask, then you demask.

Before that you do a rate-matching, you do derate-matching and initial processing with channel coding, you do channel decoding. So I wanted to put my answer in context.

Q. Okay, thank you.

Now, the encoded and rate-matched part 1 bits we see on the right side are exactly the same as the encoded and rate-matched part 1 bits we see on the left side, assuming no channel errors, right?

A. Yes.

Q. And both of those are 40 bits, right?

A. Yes.

Q. Now, if we could go to CDX-548. This is another receiver architecture that you testified about on direct, right?

A. Yes.

Q. And, again, in this case, we see that encoded rate-matched and scrambled part 1 bits are received in the architecture on the right side at the bottom, right?

A. Yes.

Q. And that's received over the air after they are transmitted by a base station?

A. Yes.

Q. And that's 40 bits, right?

A. Yes.

Q. And then you have the demasking operation and, again, that's the same operation that we saw in figure 1 of your expert report,

right?

A. Because in this case, it is a discrete front-end stage, yes.

Q. Okay. And then, again, above this, between the demasking box and the channel decoding and derate-matching box on the right side, you would have the same 40 bits that were input into the masking process on the base station, right, assuming no channel errors?

A. Yes.

MR. STEPHENS: Now, I am about to move to the confidential record, Your Honor.

JUDGE LUCKERN: Okay. Whose information is it, Mr. Stephens?

MR. STEPHENS: It is IDC's.

JUDGE LUCKERN: Okay. So everybody has to leave the hearing room, unless those that have subscribed to the protective order. We're on the confidential record.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

BY MR. STEPHENS:

Q. Nate, if you could pull up CDX-536. Now, this is another receiver architecture that you testified about on direct, right?

A. Yes.

Q. And you called this a highly integrated receiver, right?

A. Yes, I believe I used those words.

Q. And you called it that because nowhere in the architecture on the right side, exemplary receiver architecture 2, are the encoded rate-matched but not scrambled part 1 bits, the 40 bits, produced; is that right?

A. Sorry, can you repeat that?

Q. In the exemplary receiver architecture 2 on the right sides of CDX-536, there is no place where the encoded and rate-matched part 1 bits, 40 bits in length, are produced, right?

A. The --

Q. Let me ask it differently. There is nothing on the right side corresponding to the portion of the exemplary receiver architecture 1 on the left side where it says encoded and rate-matched part 1 bits, right?

A. Well, it doesn't preclude it. And I think if we look at the figure 7-20, the Samsung receiver, and that is an example, the exemplary receiver architecture, indeed you recover the candidate 40-bit sequence. So I would disagree with you. The architecture doesn't preclude it.

Q. We will get to that.

JUDGE LUCKERN: Mr. Stephens, do you want this testimony with respect to CDX-536 confidential?

MR. STEPHENS: No. We can go back on the public record.

JUDGE LUCKERN: Off the record, Karen.

(Discussion off the record.)

JUDGE LUCKERN: We're on public. Let me know when you want to go back on confidential.

MR. STEPHENS: Okay. So we're on the public record?

JUDGE LUCKERN: Yes.

MR. STEPHENS: I will ask another public question and we will go back to confidential.

JUDGE LUCKERN: Now on confidential?

MR. STEPHENS: Not yet.

JUDGE LUCKERN: Okay.

BY MR. STEPHENS:

Q. So, Dr. Gitlin, is it your testimony that the yellow box on the right side under exemplary receiver architecture 2 on CDX-536 is a descrambler?

A. My testimony is that the box combines three functions, the three functions I listed, decoding, derate-matching and descrambling.

Q. For that box to work, then, it would have to take account of the particular type of encoding that was performed before transmission, correct?

A. Yes.

MR. STEPHENS: Now I think we need to go back on the confidential record.

JUDGE LUCKERN: Whose information?

MR. STEPHENS: This is Qualcomm information.

JUDGE LUCKERN: Everybody has to leave the hearing room, unless they are subscribed to the protective order. You people are getting a lot of good exercise going back and forth.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

BY MR. STEPHENS:

Q. Nate, if you could pull up Exhibit RX-2809, the first page. You should have some excerpts of that in your binder, Dr. Gitlin. This is a book you authored; is that right?

A. I coauthored.

Q. Okay. And you used that in teaching; is that right?

A. Yeah. The book is now about 16 years old, but some of it is still pretty good.

Q. And you describe scrambling and descrambling in this book, right?

A. Yes, I do, but a totally different context than the context that -- of HSDPA. The book was written by three of us who were, I guess, experts in signal processing for wire line modems.

And the chapter that I wrote on scrambling has to do with if a business machine sends out a repetitive signal, how can you break it up and randomize it? So it talks about using a linear feedback shift register to break up a repetitive pattern and using a feed

forward shift register -- the receiver to undo that operation. So it is a totally -- yes, I did write about scrambling, but it is a totally different application.

Q. Nate, if you could pull up RX-2809-239.

MR. LEVI: I'm sorry to interrupt, would this be a good time to go on the public record?

MR. STEPHENS: I'm sorry. Thank you for that reminder.

JUDGE LUCKERN: Should we be on the public record any earlier, Mr. Stephens?

MR. STEPHENS: As soon as I began this line of questioning about this book, we should be.

JUDGE LUCKERN: Let me just see where that started. Where did that start? Right now you can pull up RX -- off the record, Karen.

(Discussion off the record.)

JUDGE LUCKERN: We're on the public record. All right. And the last thing, Mr. Stephens, was.

"Question: Nate, if you could pull up RX-2809-239."

BY MR. STEPHENS:

Q. Nate, if you could blow up on the left side about two-thirds of the way down the upper paragraph above section 6.7.1, there is a sentence that begins "a scrambler is typically used to provide an equalizer input that has a close-to-random (i.e., flat) line spectrum. These devices come in pairs; the scrambler, which is placed at the transmitter and the descrambler, which inverts the scrambling operation, is placed at the receiver."

Do you see those words, Dr. Gitlin?

A. Yes.

Q. And that's an accurate -- I have accurately read from your book, correct?

A. Yes, you did.

Q. Okay.

A. Can I just comment and give some context?

Q. There is no question pending.

JUDGE LUCKERN: We have redirect.

THE WITNESS: It is a totally different system.

JUDGE LUCKERN: All right, move on.

MR. STEPHENS: Now, unfortunately we

have to go back on the confidential record.

JUDGE LUCKERN: All right. We're back on the confidential record. Whose information?

MR. STEPHENS: This is Qualcomm's information again.

JUDGE LUCKERN: Everybody has to leave the hearing room who has not subscribed to the protective order.

(Whereupon, the trial proceeded in confidential session.)

O P E N S E S S I O N

JUDGE LUCKERN: How much time are you going to be, about?

MR. GUPTA: I would estimate about five minutes.

JUDGE LUCKERN: Fine, fine. That's great music.

REDIRECT EXAMINATION

BY MR. GUPTA:

Q. Dr. Gitlin, do you remember you were asked before the lunch break about a portion of your deposition transcript dealing with the differences between scrambling and masking and this is from the deposition transcript that was quoted from page 12, line 9 through page 13, line 7. Do you recall that?

A. This was from the first one, from the March one?

Q. The March 4th deposition, that's correct.

A. Yes. I'm sorry, can you tell me the lines again? It is page 11, 12, and 13?

Q. Right.

A. Yes.

Q. And you answered that in order to

understand the answer, you had to put that in context. And did you indicate that in order to put this in context, you would actually read from page 11, line 10? Is that correct?

A. Yes.

Q. So let me read that portion of the transcript that comes before the transcript that was actually quoted. And it begins from -- actually, I will begin with the question on line 8 on page 11.

"Question: And by mixing, what are you referring to?

"Answer: In the context of the patent, it is the Mod 2 addition or the exclusive OR.

"Question: And --

"Answer: Of the two sequences.

"Question: And by Mod 2 addition, when you say Mod 2 addition or exclusive OR, do you mean that those two essentially refer to the same operation in this context?

"Answer: In this context, yes.

"Question: So then combining your last two answers, scrambling is the Modular-2 addition or exclusive OR'ing of, of 2 -- of, of

a scrambling signal with a, a -- with data; is that right?"

Then there is an objection. It continues. The witness.

"Answer: It -- illustratively, it's an exclusive OR, when both sequences are represented as binary numbers in zeroes and ones. However, if they're represented as binary numbers, ordinary numbers, for example, plus and minus 1, the same -- equivalent operation is achieved by multiplying the two sequences in the ordinary sense of algebraic multiplication."

Did I read that correctly?

A. Yes, you did.

Q. So now with this context, can you explain in what context you were giving your answer that is quoted in page 12, line 19 through page 13, line 7?

A. I was giving this in the context of the preferred embodiment of the patent, of the '579 patent.

Q. And when you say the preferred embodiment, what figure are you referring to from the '579 patent?

A. Figures 3 and 4.

Q. Now, you were also asked a question regarding your book and what scrambling and descrambling means in the context that was quoted on one page, I believe it was RX-2809-239. Can we bring that up, please?

And I believe the portion that was quoted was from line -- it begins with a scrambler is typically used to provide, so if you could highlight that paragraph.

Can you explain in what context you are referring to scrambling and descrambling in your book?

A. So this book was written, as I said, by -- we were working intensively for about 15 years in wire-line modems. And this was the context to provide a randomized signal from the input of a business machine, which might have repetitive signal like plus and minus 1, plus and minus 1. It would generate a tone.

The rest of the receivers wouldn't like that. It wouldn't operate properly. So you use a scrambler, transmitter, and a descrambler at the receiver.

And it turns out that these operations

are done right, one right after each other. So it is analogous to the mixing and demixing operation. It occurs at the front end.

So that's in the sense of which I -- it is a totally different application, but I use -- that's in the sense in which I use the word invert.

Q. Are you --

JUDGE LUCKERN: Yes.

MR. POWERS: We appear to still be on the confidential record.

JUDGE LUCKERN: Starting with redirect, can we be on the public record? You asked about the deposition so that stays confidential.

MR. GUPTA: I am looking at that portion to see whether that actually needs to be confidential or not. No, I don't believe so, Your Honor. I think that portion can be designated public.

JUDGE LUCKERN: So as far as any of your redirect can be public?

MR. GUPTA: That is correct.

JUDGE LUCKERN: All right. Off the record, Karen.

(Discussion off the record.)

JUDGE LUCKERN: We're on public record since then. Thank you, Mr. Powers, I appreciate that.

I know people are under a lot of pressure. Please look at the two signs when you start. We just are taking time up when I have to stop and go back and you have got enough lawyers out there, look at the record. You know what the signs say. And bring it to the interrogator's attention, please.

Okay. So as far as where we are now, all right. Well, you started, are you -- do you know where you are, Mr. Gupta? I don't have to read?

MR. GUPTA: Yes, Your Honor.

JUDGE LUCKERN: It was on the book, et cetera. So he is finished it. What is the next question?

BY MR. GUPTA:

Q. This description that you have described in your book, it is not written within the context of the '579 patent; is that correct?

A. Not at all.

MR. GUPTA: I have no more questions, Your Honor.

JUDGE LUCKERN: I can release this witness as far as you are concerned, Mr. Gupta?

MR. GUPTA: We just have to move some exhibits in.

JUDGE LUCKERN: We have the exhibits, absolutely. Have you talked with Mr. Stephens and the staff? Is everybody happy about exhibits, or are we going to have any objection? Where do we stand on that?

MR. GUPTA: I have spoken to opposing counsel about the exhibits that I wanted to move in, and there are no objections to those.

JUDGE LUCKERN: Mr. Stephens?

MR. STEPHENS: That part is true, Your Honor. I think I used a few additional exhibits in my cross, which we haven't fully discussed. I think we need a minute and a half to discuss that.

JUDGE LUCKERN: All right. Okay. Go ahead. By yourself right now? Talk to Mr. Gupta. Don't forget the staff. If you want to, Mr. Levi, whatever you want to do.

(Pause.)

(Discussion off the record.)

JUDGE LUCKERN: Back on the public record. These exhibits that you are going to offer in have any objection, Mr. Gupta?

MR. GUPTA: No, Your Honor.

JUDGE LUCKERN: All right. What are they?

MR. GUPTA: Starting with CDXs, these will be consecutively CDX-501 through 568. Then CX-461, CX-464, CX-475, CX-485, CX-487, CX-530, CX-535, CX-556, and RX-0205.

JUDGE LUCKERN: All right. Based on the representation that there are no objections by anybody to these exhibits, I will receive in the following exhibits, CDX-501 through 568, based on Mr. Gupta's representation, the numbers right in between, they go consecutive, 501, 502, et cetera. So they are in. Also I will receive into evidence the following CXs, 461, CX-461, 464, 475, 485, 487, 530, 535, and 556. And I will also receive into evidence RX-205.

(Complainant's Exhibit Numbers CX-461, CX-464, CX-475, CX-485, CX-487, CX-530, CX-535, CX-556, CDX-501, CDX-502, CDX-503, CDX-504, CDX-505, CDX-506, CDX-507, CDX-508, CDX-509, CDX-510, CDX-511, CDX-512, CDX-513, CDX-514, CDX-515, CDX-516, CDX-517, CDX-518, CDX-519, CDX-520, CDX-521, CDX-522, CDX-523, CDX-524, CDX-525, CDX-526, CDX-527, CDX-528, CDX-529, CDX-530, CDX-531, CDX-532, CDX-533, CDX-534, CDX-535, CDX-536, CDX-537, CDX-538, CDX-539, CDX-540, CDX-541, CDX-542, CDX-543, CDX-544, CDX-545, CDX-546, CDX-547, CDX-548, CDX-549, CDX-550, CDX-551, CDX-552, CDX-553, CDX-554, CDX-555, CDX-556, CDX-557, CDX-558, CDX-559, CDX-560, CDX-561, CDX-562, CDX-563, CDX-564, CDX-565, CDX-566, CDX-567, and CDX-568 were received into evidence.)

(Respondent's Exhibit Number RX-205 was received into evidence.)

JUDGE LUCKERN: Okay, Mr. Gupta. All right, Mr. Stephens.

MR. STEPHENS: Your Honor, RDX-12, RDX-16, and RX-2809.

JUDGE LUCKERN: As I understand it there is no objection from Complainant or the

staff on those exhibits, correct?

MR. STEPHENS: That's correct, Your Honor.

JUDGE LUCKERN: All right. I will also receive into evidence RDX-12, RDX-16, and RX-2809.

(Respondent's Exhibit Numbers RX-2809, RDX-16 were received into evidence.)

JUDGE LUCKERN: Can I release this witness?

MR. GUPTA: Yes, Your Honor.

JUDGE LUCKERN: As far as you are concerned, Mr. Stephens?

MR. STEPHENS: Yes, Your Honor.

JUDGE LUCKERN: Mr. Levi?

MR. LEVI: Yes, Your Honor.

JUDGE LUCKERN: You are released. Thank you very much. I appreciate it. We have to take a break. I understand the next witness is William Merritt. Who is going to do the direct of Mr. Merritt?

MR. COYNE: I will be doing Mr. Merritt.

JUDGE LUCKERN: Who is doing any cross?

MR. POWERS: I will, Your Honor.

JUDGE LUCKERN: Let's take a ten-minute break, and then come back.

(A recess was taken at 2:18 p.m., after which the trial resumed at 2:36 p.m.)

JUDGE LUCKERN: On the public record. Mr. Coyne, do you want to call your next witness for Complainant?

MR. COYNE: Your Honor, Mr. Stephens needs to talk first.

MR. STEPHENS: Your Honor, I realized on the break that I had mistakenly identified RDX-12 in the exhibits that we read in and it should have been RDX-14. And I have conferred with opposing counsel and the staff and they have no objection to correcting that.

JUDGE LUCKERN: All right. Off the record.

(Discussion off the record.)

JUDGE LUCKERN: Back on the record. We're back on the public record.

Mr. Stephens has indicated to me, maybe it was off the record, but I'll put it on the record. There is no such exhibit as RDX-12. And so, therefore, I am withdrawing

myself RDX-12, which is just a theoretical exhibit right now. And, anyway, it is not in. But what he intended to move in was RDX-14.

With no objection from Complainant and the staff, I will receive into evidence RDX-14.

(Respondent's Exhibit Number RDX-14 was received into evidence.)

JUDGE LUCKERN: Does that clear it up?

MR. STEPHENS: That clears it up.

JUDGE LUCKERN: Thank you, Mr. Stephens.

MR. POWERS: There is one other issue that I think we should address before beginning Mr. Merritt's examination, and that relates to the exhibits which InterDigital proposes to use with Mr. Merritt.

And the issue is this: Your ground rules, of course, state quite clearly that all exhibits intended to be used in the direct examination of a witness be identified at 8:00 o'clock the night before by e-mail. And we did receive, the parties have been following that quite carefully throughout the course of the proceeding.

And last night, pursuant to that

ground rule, we received an e-mail which identified eight demonstrative exhibits, and four substantive exhibits, plus, and the e-mail did say, plus all the exhibits that are "cited in the demonstratives." There are 39 exhibits, substantive exhibits cited in the demonstratives, so that would be, if there is no overlap, 43.

I understand that late this morning that counsel for InterDigital sent an e-mail to us identifying 124 exhibits it intends to use with Mr. Merritt. I will note that no counsel from InterDigital came to tell me about the 124. They sent an e-mail during the proceedings this morning but, of course, we were in trial.

And that raises a couple of concerns. Obviously, first, whatever exhibits were not identified at 8:00 o'clock or approximately 8:00 o'clock, the parties have not -- have easily forgiven slight variations off of the 8:00 o'clock, but the ones that were not identified until the e-mail late this morning, we would contend, violate your ground rules and should not be permitted to be used because of

the obvious prejudice to us.

The second concern, though, I have is a separate one, which is certainly as to 124 and perhaps even as to the 43, Your Honor has made quite clear that you follow the general rule that you are not going to have exhibits just dumped into the record without testimony about them.

And they have estimated an hour and a half with this witness. And my math suggests that if they intend to cover 124 exhibits in an hour and a half, that's approximately 40 seconds per exhibit, not counting any introductions.

I don't think that complies with Your Honor's views about how exhibits should be used. And so we have a second objection with regard to the 124. And obviously, I haven't seen how Mr. Coyne intends to attempt to introduce these exhibits, but I wanted to flag those two concerns to the Court before we begin the examination so that the examination could be more orderly.

JUDGE LUCKERN: All right. Mr. Coyne, how do you respond?

MR. COYNE: Yes, Your Honor. None of these are a surprise. There is no prejudice. These are all the license agreements between the parties about which both during the course of the proceeding, both Respondents interrogated Mr. Merritt at length. They are the license offers that were made to Samsung and other parties. They are arbitral awards against Samsung and others, among other parties.

There is no surprise. I apologize for any inconvenience to Mr. Powers or to Samsung for the lateness of the list. I will take responsibility for it. But many of these, for example, are the 10-K reports that Samsung itself has put on the exhibit list. And about which the parties have no substantive disagreement, in fact, part of the demonstratives, we have conferred, met and conferred repeatedly about the exhibits and there is no substantive objection to any of these exhibits.

Therefore, there is no surprise. Mr. Merritt is the obvious and logical witness who would be talking about these issues and that's

been known by Samsung for months. Again, I apologize for the inconvenience, but there simply is no prejudice. This is an attempt to rely on a technical defect which I will accept responsibility for, but for which there is no prejudice to Samsung.

MR. POWERS: May I respond briefly?

JUDGE LUCKERN: Sure, absolutely.

MR. POWERS: My point, Your Honor, was not that there isn't a universe of -- the same argument Mr. Coyne just made, you could make about a thousand documents. Yes, there are thousands of documents that we know about generally, and Mr. Merritt could talk about. The point of your ground rule is not that. The point of your ground rule is to give the parties notices of what is intended to be used on direct examination.

So that the opposing party can be prepared for that. And we shouldn't have to scour the entire exhibit list or all the produced documents and guess about what that is. So the point of this is that they identified 39 exhibits on the demonstrative exhibits, and I will note that most of the

demonstrative exhibits they gave us, which were eight, are portions of their damages expert or their economic expert's report.

So that's going to raise separate issues that we have addressed before, but that's a question we can handle as those arise.

But the fact remains, it is not just an inconvenience, it violates the whole purpose of your ground rule, which is that the parties have an orderly statement of what exhibits they are going to use, so people can be prepared. And telling me an hour -- or actually they never told me, but telling us while we're in the middle of trial that they intend to add 80 some odd exhibits, which as I understand it are several thousand pages, simply doesn't work. And it is not an inconvenience. And it is not the fact that we weren't aware of these documents. It is the basic purpose of preparing for this witness.

And the second issue that I have noted remains. If they intended to really cover 124 exhibits in an hour and a half, that would violate Your Honor's very clearly stated view that we're not just going to dump exhibits into

the record without actually having testimony about them. And that appears to be what the intent is. It looks like they are trying to say -- it looks like their intent is to say, here is an exhibit from our expert report, is it right, all right, we move to admit the following 55 exhibits that are referenced or cited somewhere on that report.

And with this witness, that's certainly not how I believe this proceeding should proceed. And I don't think it is how Your Honor has told us this proceeding should go forward.

JUDGE LUCKERN: Do you have anything new you want to add, to what you have just heard, Mr. Coyne?

MR. COYNE: Apart from the admission there was no prejudice to Samsung, Your Honor, no.

MR. BRITTINGHAM: Your Honor, I'm sorry. Could I just add in response to Mr. Powers' second point, which is about the data dump argument, and I want to raise this, I raised this before when we started to get into this. Again, many of the exhibits that we're

now talking about were, in fact, deposition exhibits. And those deposition transcripts are being admitted in evidence as JX exhibits, joint exhibits.

And those deposition exhibits, obviously, deserve to be in as well, in order to understand the transcript testimony.

So we raised this before and we don't need to resolve this yet because, again, we're still finalizing the joint exhibits, but I do want to at least oppose the idea that an exhibit that's only talked about, you know, for five seconds with Mr. Merritt or 20 seconds with somebody else, that there is, in fact, no testimony at all about that exhibit. And it may well have been discussed for 20 minutes in a deposition that is in the record as well.

And before anybody complains about dumping things in the record --

JUDGE LUCKERN: Of course, right now --

MR. BRITTINGHAM: Respondents have identified some large number of deposition transcripts that they intend to put in, so I don't think they can complain that the

deposition exhibits from those same transcripts aren't appropriately admitted into evidence.

MR. POWERS: May I respond briefly?

JUDGE LUCKERN: Sure, go ahead.

MR. POWERS: We certainly have no objection to admission of exhibits that are discussed in designated deposition testimony, submitted to the Court. That, of course, is proper and whatever exhibits that come in properly that way, will come in.

That's not a reason to try to admit them, 124 exhibits at 40 seconds a pop with Mr. Merritt. So that doesn't justify why it happens here. I think that's the only comment I would like to make.

JUDGE LUCKERN: Of course, right now, I have no idea how they are going in come in through the deposition. They are not in yet. So we have that factor. We don't know how Mr. Coyne is going to use whatever he is going to use here.

So I have a hesitancy to make a ruling right now until we know what Mr. Coyne is going to do. And --

MR. POWERS: I agree, Your Honor. The

numerosity issue is slightly premature, but I thought it was worth flagging the issue because it appears to be their intent. The violation of the ground rule is not premature. That -- seems to me that an order precluding them from using with Mr. Merritt, they can use those exhibits appropriately, if so, if proper, with other witnesses, of course, with proper notice. But under your ground rules, those ground rules have a purpose and should have an effect. And that effect should be the preclusion with this witness of use of those exhibits not properly identified.

JUDGE LUCKERN: Well, they are my ground rules. And we can see what I want to do with them. I mean, they are not in stone.

And I don't know what is going to be done with them at all yet. Mr. Levi, do you have any comment right now on what arguments you heard Mr. Powers make?

MR. LEVI: Your Honor, the staff is sympathetic to Mr. Powers' situation. I am looking at the e-mail that was sent approximately four and a half hours ago and there appear to be scores and scores of

exhibits. And, again, the staff is sympathetic to Mr. Powers' dilemma. I don't understand how he could be expected to prepare a thorough cross-examination of a witness with roughly four and a half hours notice.

And the issue, again, isn't whether Samsung knew of the existence of these exhibits. The issue is whether Samsung had notice that InterDigital intended to use these exhibits with Mr. Merritt's direct examination. Thank you, Your Honor.

JUDGE LUCKERN: But as far as what action you want me to take right now, is staff moving for me to take some action right now?

MR. LEVI: No, Your Honor. I think that the -- why don't we wait and see what happens, and although that might raise some difficulties if certainly these exhibits are used during the direct examination, I suspect that Mr. Powers is going to stand up and object. We need to address it then. So maybe that would be the better course.

JUDGE LUCKERN: Mr. Powers, are you making a motion that I do something right now with respect to these exhibits?

MR. POWERS: Yes, Your Honor, I am. I think that we're all obviously very concerned about the time. And I think that a decision now will save us time. I am happy to -- any course Your Honor suggests. But otherwise I am going to have to object and try to figure out, out of this list of 124 new exhibits, which ones we were given notice of and which ones we weren't.

And I just think that will produce a very disjointed examination. And I think the proper order of your ground rules, because of the clear prejudice to us, is to prevent examination of this witness based on those undisclosed exhibits. And they can certainly use those exhibits with any other witness, considering it is proper and they give proper notice. We have no objection to that, of course, but it seems to me that this is exactly the type of situation your ground rules were designed to prevent. They give us notice of 40 exhibits and then intend to use 124.

And that doesn't even come close.

JUDGE LUCKERN: Well, no. I am going to reserve a ruling. Let's see where we are

going to go on it. And I expect that you will object and at least I will have something before me to have the record reflect just what specifically it is, insofar as this particular exhibit.

I haven't even looked at the demonstratives. I have no idea what it is. So I am going to reserve any ruling. I expect that you will object as to -- if you are of a position in a particular exhibit. Let's see where we are going to go. None of the demonstratives are in right now anyway. Let's see where we are going to go.

MR. POWERS: May I also have a continuing objection to the use of any exhibit as to which we did not receive notice last night?

JUDGE LUCKERN: You may.

MR. POWERS: Thank you, Your Honor.

JUDGE LUCKERN: But I expect you to make any comments on any with respect to it. Do you understand what I am saying? In other words, if he gets into it, that's an example. Well, I don't know what he is going to ask this witness. Are these all licenses? He will say

yes. I am familiar with every one of them and they are all licenses I have something to do with. I don't know.

MR. POWERS: Some of them are licenses. Many of them are random e-mails or people's personal handwritten notes, not his. There are, out of this 124, and obviously we have not had an ability to analyze them in any detail, it is a mish-mash of all sorts of information that had we known about them last night, we could have raised proper objections to their use with this witness. We could have had the type of dialogue that Your Honor's ground rules contemplate.

JUDGE LUCKERN: But nothing is in yet. Nothing is in yet.

MR. POWERS: Nothing is in, but we also are not going to be able to make the type of timely objections that Your Honor likes because we haven't had time to look at the documents because they weren't identified to us. And it is actually going to take, by the time I figure out whether an exhibit was identified or not, when he is asking about it, he will be done with it. So it is going to be

difficult for me to raise the objection you asked me to raise. But I will certainly try, Your Honor.

JUDGE LUCKERN: Mr. Coyne, do you have any new comments you want to make based on what we have heard?

MR. COYNE: No, Your Honor. I think we should be allowed to proceed and Mr. Powers can object to the exhibits as I try to use them, rather than try to --

JUDGE LUCKERN: Let's proceed. Do you want to raise your right arm, and I will administer the oath.

Whereupon--

WILLIAM MERRITT,

having been first duly sworn, was examined and testified as follows:

JUDGE LUCKERN: Mr. Powers, you are doing any cross-examination, correct?

MR. POWERS: Yes, Your Honor.

DIRECT EXAMINATION

BY MR. COYNE:

Q. Good afternoon, Mr. Merritt.

A. Afternoon.

Q. What are your degrees in?

A. I have a Bachelor's of science in mechanical engineering and a juris doctorate degree.

Q. What did you do before you joined InterDigital?

A. Out of college, I went to work for Stone & Webster Engineering Corp. designing systems for electric generating facilities, went from Stone & Webster to Public Service Electric & Gas Company, where I was moved to the operation side of electric generating facilities.

I went to law school at night during that period. Upon graduating from law school, I went to work for Long Island Lighting Company as an attorney in its in-house Law Department. Started in their regulatory group handling rate cases and things like that.

And over the course of my approximately ten years at LILCO, got involved in actually almost every aspect of the business from litigation to employment matters, as well as handling the research and development work that the company did. As part of that, went and took the bar exam, passed the bar exam in

1994, I believe it was.

And in 1996, left Long Island Lighting Company and joined InterDigital as a vice president of legal.

Q. Now, the things that you were involved in during that time, were you ever involved in patent matters?

A. With LILCO, we did have a patent portfolio that we were building while I was there. We did a lot of local research for two reasons. One, we liked to fund local companies and build businesses on the island.

And second, we were looking for solutions that would make our systems run better. As part of that effort, we would secure patents on inventions that were created during that process, and we also would license those patents out to manufacturers, to the extent that they were applicable to others beyond us.

Q. Did you ever take the patent bar?

A. Yes, I did.

Q. Did you pass it?

A. Yes, I did.

Q. Okay. Are you barred in any state in

terms of the general bar?

A. I am admitted in New York and in Pennsylvania.

Q. What have you been doing since you have been at InterDigital?

A. I joined InterDigital in 1996 as vice president of legal reporting to the general counsel. At that time, I had day-to-day responsibilities for running the Legal Department, for the most part, and also at that time, the company being fairly small, I also got involved in the patent matters for the company. So I started getting involved very early on with both the licensing business of the company, as well as some of the European oppositions that they had on some of the patents.

Continued as vice president of legal for approximately two years, and then I was promoted to a general counsel of the company, at which point I was responsible for the entire Legal Department and the legal function within the company. Continued over that period of time, though, to be also more and more involved in the licensing and patent operations of the

company.

So through that period of time was really the person on the front lines negotiating the license agreements for the company with manufacturers around the world, overseeing litigation that we were doing, and also having a hand in patent prosecution as well.

In August of 2001, I believe, I was promoted to general patent counsel and president of the company's patent holding subsidiaries. With that transition, I became formally responsible for all of the patent operations within InterDigital, so it would be licensing, litigation, prosecution and all the other aspects of the patent licensing business.

Continued to be involved very much firsthand in all of the patent licensing negotiations for the company during that period of time, was involved firsthand in the litigations that we were involved in at that time, also involved to some degree in managing the patent portfolio, although that was probably a function where I managed people versus managing actual paper.

And I continued in that role of general patent counsel until May of 2005, at which point I was promoted to president and CEO of the company. And since becoming president and CEO, have done the things that your typical president and CEO of a company of our size does, which is report to the Board of Directors, manage the company on a day-to-day basis, establish the strategic direction for the company.

But I also continue to be involved very much so in the licensing program. It is a very important part of our business, and so to some extent with the larger manufacturers, I have direct contact with them and get involved directly in those negotiations.

Q. Now, do you have familiarity with the company's 3G WCDMA licenses?

A. Yes. I am very familiar with all of those license agreements.

Q. Okay. Let's talk a little bit about InterDigital itself. We have heard the phrase technology company a couple times during the trial. What does InterDigital do?

A. InterDigital was formed back in the

late 1970s with sort of a single purpose, the founder wanted to develop a telephone that he could put in his shirt pocket. And that was the basis on which the company was formed. And he went out and engaged people and they got quickly involved in digital cellular technology as opposed to analog, which was sort of the technology of the day.

And that's really where the company has remained through its entire, almost 30 year life now, very much focused on advanced digital wireless technology development.

We do that development and sort of bring it to market in, I would say, three ways. Very early on, we were involved in the US TDMA standardization. We actually built systems, demonstrated the systems in Philadelphia, demonstrating things like handoff and other technology to show that digital technology was a good replacement and upgrade for the analog systems that were in place then.

The founders of the company were very -- felt that patent protection was a very important part of the business, so they had the foresight back in the early to mid-'80s to

begin filing patents for the inventions that were being created in that program and filing those around the world.

And that research and development and advanced wireless technology research has remained a mainstay of the company. And over the years, we have moved from working on 2G technologies to working on 3G technologies, being very much involved in that standards process to working within the 802 standards bodies, 802.11 and the variations of that, 802.16, commonly known as WiMAX, as well as other standards, 802.21, which is a mobility standard. So that remains a very important part of the company.

And that effort gets monetized in a sense in three ways. We have a patent licensing program today. We have had that since approximately 1992, that program started. The licensing program has been a good success for the company. It generated over a billion and a half dollars in cash out of that program.

We license approximately 80 percent of the market on 2G. Today about 35 percent of the market we have under license for 3 G. So

that's the patent licensing effort.

Coming out of that same R&D work, we also over the years have provided engineering services to companies. We provided engineering services to Siemens and Samsung with respect to what we call a broadband code division multiple access system back in the late -- sorry, in the 1996-1997 time frame. And actually deployed those systems around the world. They were among the first systems, wireless systems, to actually do video over the air.

We also engaged with Infineon Technologies. Infineon is a German semiconductor company. Infineon engaged InterDigital in 2001 to develop the software for Infineon's 3G ASIC solution.

That's been a seven year partnership with Infineon, very successful partnership. Infineon today uses our software in all of their 3G ASICs. We're hoping tomorrow when the iPhone is launched that the Infineon ASIC is in there running InterDigital's software.

And we have also done engineering services for Nokia. We developed a complete TDD solution for Nokia back in the 1999 time

frame, delivering a complete solution for them to use in the market. So the engineering services component of the business is a strong component of the business.

And then the third component of the business is the product part of the business. And the product business has been varied over the years. We have delivered full systems into the market. Today our focus is on terminal unit ASIC products. We have a digital baseband solution for the 3G market. We secured our first design win with a customer about three weeks ago for that ASIC solution, so that's an emerging part of our business is the ASIC business. So since its formation back in 1979, InterDigital has kept pretty close to its knitting and done the same thing over the years.

MR. POWERS: Your Honor, I would object and move to strike only one small snippet of that very long answer. That's the snippet in which the witness opined about their market shares of the licensees in 2G and 3G. The basis for the objection, no foundation and opinion testimony.

This witness is obviously a fact witness and there may be some industry report that this witness regularly relies upon, upon which that information is based, in which case there is a way to get testimony of this nature in. But merely stating it the way it was stated is objectionable.

JUDGE LUCKERN: All right. We have a real long answer. So I would like to know specifically what you have in mind from your realtime, so I know what you want to strike.

MR. POWERS: It is the sentence that says, we have licensed 80 percent of the market for 2G and --

JUDGE LUCKERN: Where is it on your realtime? Somebody over there, where is it on your realtime?

MR. LEVI: Page 259, beginning at line 2, I believe.

JUDGE LUCKERN: All right. Yeah. Fine. In other words, so what you want stricken is, "we license approximately 80 percent of the market on 2G, today about 35 percent of the market we have under license for 3G." Then the last sentence, "so that's

the patent licensing effort." Do I understand all you are directed to is those first two sentences of that paragraph?

MR. POWERS: Precisely, Your Honor.

JUDGE LUCKERN: Mr. Coyne?

MR. COYNE: Your Honor, I will be happy to establish the witness's foundation for that knowledge.

JUDGE LUCKERN: All right. Go ahead.

BY MR. COYNE:

Q. Mr. Merritt --

JUDGE LUCKERN: You can renew your motion. Let's hear what he is going to do to establish some foundation.

BY MR. COYNE:

Q. What is your source for that information that you're licensing 85 percent of the market -- I'm sorry, 80 percent for 2G and 35 percent of the market for 3G?

A. We take the license agreements that we have with the manufacturers and we have their market shares in both the 2G and the 3G markets and we actually track that internally. So that's the basis for those percentages.

Q. Is that something you do in the

regular course of your business?

A. Yes. Because we actually use those percentages in our investor presentations, so we feel that we need to have factual basis for that. So we, as a regular part of our business, we maintain that calculation.

Q. All right.

JUDGE LUCKERN: Mr. Powers?

MR. POWERS: There is still no foundation for it. All the witness has said is we track the market shares. That could be based on a psychic and a crystal ball, or it could be based on something that is actually reliable. There is still no foundation for the numbers. There is just the assertion that it is tracked. That does not establish foundation.

JUDGE LUCKERN: All right. Mr. Levi, what is your position with respect to striking these two sentences?

MR. LEVI: Well, I would like to short-circuit this by having Mr. Coyne ask a question which I think would remedy Mr. Powers' concern. That seems to be a way to resolve this.

JUDGE LUCKERN: Speak up, I can hardly hear you.

MR. LEVI: Sorry, Your Honor, my mic was off. It seems to me that the best way to resolve this would be just to short-circuit the objection by having Mr. Coyne ask a simple question which would address Mr. Powers' concern, would be the staff's position.

JUDGE LUCKERN: Well --

MR. LEVI: Again, the staff doesn't want to presume to tell InterDigital counsel how to conduct its examination.

JUDGE LUCKERN: Well, Mr. Coyne can't read into your mind as to what you have.

MR. COYNE: I would be happy to connect it up. I think the record is more than adequate already.

BY MR. COYNE:

Q. Mr. Merritt, what information does the company use in the regular course of its business in order to track that? Do you read tea leaves?

A. The company subscribes to a number of industry reports, among them, Strategy Analytics, which tracks shipments in the

cellular industry and provides market shares for both companies and technologies, so it will have, for example, Nokia's market share for GSM shipments and Nokia's market share for WCDMA.

And then we check that information against other reports that we have within the company.

Q. Is that information reasonably relied upon in the regular course of your business and industry or not?

A. Strategy Analytics is a pretty well respected research shop.

Q. I would like to -- John, could you bring up --

JUDGE LUCKERN: Do you still maintain your motion to strike, Mr. Powers?

MR. POWERS: The only basis remaining -- I accept the foundation as now the basis for it, but what we haven't seen yet is a Strategy Analytics document that would provide those numbers. They may say 80 percent. They may say 20 percent. I don't know what they say. But there is still no foundation for the numbers. There is foundation for the basis for knowledge, but there is not foundation for the

numbers.

JUDGE LUCKERN: All right. Mr. Levi, what is your position with respect to the motion to strike?

So you still maintain your motion?

MR. POWERS: Yes, sir, as to the numbers.

MR. LEVI: It seems to the staff that that point that Mr. Powers states remains would be properly addressed on cross-examination.

JUDGE LUCKERN: Yeah, I am going to deny the motion to strike. We will see where we're going to go on cross-examination and redirect. You will have your opportunity to renew that motion, if you want to. If I don't hear from you again, it is gone. Go ahead, Mr. Coyne.

BY MR. COYNE:

Q. John, would you bring up CDX-601, followed by 602.

Mr. Merritt, do you see CDX-601 on the screen now. What are we looking at here?

A. This is a graph showing the number of InterDigital issued U.S. patents at the end of each of these years as reported in the

company's 10-K filings. So in 1997, for example, there would be 100 patents and then in 2006, approximately 800 issued U.S. patents.

Q. And would you bring up CDX-602, John, please. And what are we looking at on this graph? I notice the scale on the left, by the way, is different.

A. Yes. This is the issued non-U.S. patents or foreign patents. Same basis as reported in the company's securities filings and it is the number as of the end of each of those years.

Q. You have mentioned B-CDMA before. What does B-CDMA technology have to do with the WCDMA technology that's at issue in this case?

A. The company began working on what it called broadband code division multiple access or B-CDMA technology in the early '90s. And it was actually well before sort of the industry adopted the term wideband CDMA.

The technology program that we had in place was to develop a system that would be an advance over current digital systems, which were primarily voice oriented, and instead would provide additional capability providing

the user the ability to secure a video transmissions over the air and the like. And so that was a development by the company, by the company, as I said, starting in the 1993 or so -- '4 time frame, and continuing on for quite sometime.

And eventually evolved over to our WCDMA work.

Q. Okay.

MR. COYNE: Your Honor, I would like to switch to another topic now. We have a couple of questions that can stay on the public record, but pretty quickly going to need to get into the confidential record.

JUDGE LUCKERN: Go ahead.

BY MR. COYNE:

Q. How important is the licensing that you mentioned to InterDigital?

A. Patent licensing is the biggest part of our business. And it has been for a number of years. As I mentioned before, the company began its life as an R&D shop doing a lot of research into advanced wireless techniques.

As a result of that advanced research, built a patent portfolio with respect to

inventions that we believe are applicable to cellular industries and we began a licensing program in the '90s with respect to those patents.

And it has been a mainstay of the company's business for as long as I have been there. It provides us the cash to make new investment in new products, as well as do other things. So it is a very important part of the company's business today.

Q. Does it provide you the cash to pay your employees?

A. Absolutely.

Q. Maintain your facilities?

A. Absolutely.

MR. COYNE: Your Honor, what I would like to do -- let me ask this first.

BY MR. COYNE:

Q. Mr. Merritt, have you been involved personally in the preparation of the company's 10-Ks from '96 to the present?

A. Yes.

Q. I would like to move these 10-Ks into evidence. They are on Respondent's exhibit list. Through the oversight that I mentioned,

they were not identified on the list that was sent last evening. I don't believe there should be any objection to them.

And Mr. Merritt was personally involved with them. I would like to identify and move them in.

JUDGE LUCKERN: Identify them at least so we know what you are talking about.

MR. POWERS: Your Honor, I think this is a good example of a situation where we ought to see where it goes, because if they intend to just identify and move in eight or ten documents and have no testimony about them, I would have an objection along the lines of Your Honor's prior ruling.

I think we should do it in the normal course of identifying the document, have testimony about it, and deal with the admissibility at the end of the testimony, the way we have done it with other witnesses.

JUDGE LUCKERN: Mr. Coyne, he is not testifying. He said Mr. Merritt was personally involved with them. I would like to identify them and move them in.

I don't know if we have -- I haven't

-- I don't want to go back to the realtime, whether he was or was not, I don't know, Mr. Coyne. Let's proceed without moving them in right now.

MR. COYNE: I will withhold.

BY MR. COYNE:

Q. Mr. Merritt, would you turn to Exhibit 255, RX-255 in the witness binders that are in front of you.

MR. COYNE: The range we're looking at here, Your Honor, are RX-255 to RX-267.

MR. POWERS: That's part of the range, Your Honor, as to which we object as not having notice under your ground rules.

THE WITNESS: Okay, I have that in front of me.

BY MR. COYNE:

Q. Mr. Merritt, were you involved in the preparation of any part of that 10-K?

A. Yes, I was.

JUDGE LUCKERN: Let me make sure. You said RX-255.

MR. COYNE: 255.

JUDGE LUCKERN: Through 267?

MR. COYNE: 256, 7, 8, 9, 60, there is

a gap at 61, continuing again with 62, a gap at 63 --

JUDGE LUCKERN: When you say a gap, you mean there is no --

MR. COYNE: We're not using 61 or 63. So it is 55, 56, 57, 58, 59, 60, 62, 64, 65, 66, and 67.

JUDGE LUCKERN: All right. And these are all 250 -- whatever it is.

MR. COYNE: 250, 260 range.

JUDGE LUCKERN: Now we have identified what they are. Go ahead.

BY MR. COYNE:

Q. Would you look through the next one, 256. What is that document?

A. 256 is the company's form 10-K for the period ending December 31, 1997.

Q. How about RX-257, what is that document?

A. That's the company's form 10-K for the period ending December 31, 1998.

Q. RX-258, what is that?

A. That's the company's form 10-K for the period ending December 31, 1999.

Q. And what is RX-259?

A. That's the form 10-K for the period ending December 31, 2000.

Q. What is RX-260?

A. That's the form 10-K for the period ending December 31, 2001.

Q. And what is RX-262?

A. That's the form 10-K for the period ending December 31, 2002.

Q. And what is RX-264?

A. That's the form 10-K for the period ending December 31, 2003.

Q. And RX-265.

A. The company's form 10-K for the period ending December 31, 2004.

Q. And RX-266.

A. It is the form 10-K for the period ending December 31, 2005.

Q. And RX-267.

A. It is the form 10-K for the period ending December 31, 2006.

Q. Sir, were you involved in the preparation of each of those 10-Ks?

A. Yes, I was.

Q. And are those documents -- some of the documents have been amended by form 10-KA